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DATE: Friday, February 06, 2004

Hide?	<u>Set</u>	<u>Query</u>	<u>Hit</u>
	<u>Name</u>		<u>Count</u>
		<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=AND</i>	
<input type="checkbox"/>	L1	neospora\$	218
<input type="checkbox"/>	L2	\$neospora	223
<input type="checkbox"/>	L3	L2 or l1	223
<input type="checkbox"/>	L4	L3 and (weakened or weak or mutated or mutant or mutagen\$ or attenuat\$ or altered or avirulent or nonpathogenic)	146
<input type="checkbox"/>	L5	L4 and vaccin\$	119
<input type="checkbox"/>	L6	l3.clm.	31

END OF SEARCH HISTORY

[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 31 of 31 returned.**

-
- ☐ 1. [20030219381](#). 22 May 02. 27 Nov 03. Animal model for infection by an apicomplexan parasite. Ellison, Siobhan Patricia. 424/9.2; 435/258.1 A61K049/00 C12N001/10.
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- ☐ 2. [20030185852](#). 04 Apr 03. 02 Oct 03. Parasitic protozoan isolate. Ellis, John Timothy, et al. 424/191.1; 424/269.1 435/258.1 A61K039/005 A61K039/008 C12N001/10.
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- ☐ 3. [20030180785](#). 21 Apr 03. 25 Sep 03. Polynucleotide molecules encoding Neospora proteins. Krishnan, B. Rajendra, et al. 435/6; 424/190.1 435/252.3 435/320.1 435/69.1 530/350 536/23.7 C12Q001/68 C07H021/04 C07K014/195 C12P021/02 A61K039/02 C12N001/21.
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- ☐ 4. [20030166266](#). 01 Dec 00. 04 Sep 03. Open reading frame detection compositions and methods. Rombel, Irene Teresa, et al. 435/320.1; C12N015/00.
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- ☐ 5. [20030109529](#). 02 Oct 02. 12 Jun 03. Use of s-triazines for treating Apicomplexan parasitic infections. Hacker, Miles P., et al. 514/241; 514/245 A61K031/53.
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- ☐ 6. [20030100481](#). 02 Dec 02. 29 May 03. Agents for combating Neospora spec. Greif, Gisela, et al. 514/1; A61K031/00.
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- ☐ 7. [20030091591](#). 20 Sep 02. 15 May 03. Alphavirus expression vectors and uses thereof. Xiong, Cheng, et al. 424/199.1; 435/235.1 435/456 A61K039/12 C12N007/00 C12N015/86.
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- ☐ 8. [20020165373](#). 21 Sep 01. 07 Nov 02. Recombinant neospora antigens and their uses. Conrad, Patricia C., et al. 536/23.1; C07H021/02 C07H021/04.
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- ☐ 9. [20020160441](#). 24 Apr 02. 31 Oct 02. Protein elongation factor 2 as a target for antifungal and antiparasitic agents. Nielsen-Kahn, Jennifer, et al. 435/32; 435/254.2 435/258.1 C12Q001/18 C12N001/18 C12N001/10.
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- ☐ 10. [20020146748](#). 22 Jan 01. 10 Oct 02. Immunological detection of neosporosis using a recombinant antigen. Sibley, L. David, et al. 435/7.22; 435/183 530/388.2 536/23.2 G01N033/53 G01N033/569 C07H021/04 C12N009/00 C07K016/20.
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- ☐ 11. [20020146436](#). 02 Apr 02. 10 Oct 02. Neospora vaccines. Choromanski, Leszek J., et al. 424/269.1; 435/258.1 A61K039/002 C12N001/10.
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- ☐ 12. [20020143018](#). 05 Mar 02. 03 Oct 02. Praziquantel compounds for treating diseases due to Sarcocystis, Neospora, Toxoplasma and Isospora. Kennedy, Thomas J.. 514/250; A61K031/4985.
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- ☐ 13. [20020131979](#). 14 Mar 02. 19 Sep 02. Adjuvanted vaccine which is substantially free of non-host albumin. Hennessy, Kristina J., et al. 424/201.1; 424/204.1 424/234.1 424/269.1 A61K039/295 A61K039/12 A61K039/02.
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- ☐ 14. [20020102273](#). 08 Aug 95. 01 Aug 02. USE OF ALPHAVIRUS EXPRESSION VECTORS TO PRODUCE PARASITE ANTIGENS. GRIEVE, ROBERT B., et al. 424/199.1; A61K039/12.
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- ☐ 15. 20020058046. 09 Nov 01. 16 May 02. Neospora vaccine. Brake, David A., et al. 424/265.1; A61K039/002.
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- ☐ 17. 20020041886. 23 Apr 01. 11 Apr 02. Equine protozoal myeloencephalitis vaccine. Bigbie, Rocky Barry, et al. 424/269.1; 435/258.1 514/44 A61K048/00 C12N001/10 A61K039/002.
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- ☐ 18. 6682746. 14 Mar 02; 27 Jan 04. Adjuvanted vaccine which is substantially free of non-host albumin. Hennessy; Kristina J., et al. 424/278.1; 424/184.1 424/201.1 424/204.1 424/234.1 424/265.1 424/269.1 424/93.1. A61K045/00 A61K047/00 A61K039/00 A01N063/00 A01N065/00.
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- ☐ 19. 6656479. 12 Sep 01; 02 Dec 03. Attenuated live neospora vaccine. Brake; David A, et al. 424/269.1; 424/258.1 424/271.1 424/273.1 424/93.1 424/93.2 435/258.1 435/69.1. A61K039/002.
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- ☐ 20. 6600027. 25 Mar 99; 29 Jul 03. Polynucleotide molecules encoding neospora proteins. Krishnan; B. Rajendra, et al. 536/23.1; 435/252.3 435/320.1 435/69.1 536/23.4 536/23.5 536/24.32. C07H021/02 C07H021/04 C12P021/06 C12N001/20 C12N015/00.
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- ☐ 23. 6429211. 23 May 00; 06 Aug 02. Praziquantel compounds for treating diseases due to Sarcocystis Neospora Toxoplasma and Isospora. Kennedy; Thomas J.. 514/308; A61K031/47.
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☐ 31. 5707617. 20 Oct 94; 13 Jan 98. Bovine neospora isolates. Conrad; Patricia A., et al. 424/93.1; 435/258.1. C12N001/10.

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Terms	Documents
L3.clm.	31

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Art Unit: 1645

117. NZ 329095A. Live attenuated Neospora vaccine - for protecting animals against neosporosis. BLAGBURN, B, et al. A61K000/00 A61K035/68 A61K039/00 A61K039/002 A61K039/02 A61K039/39 C12N001/00 C12N001/10 C12N001/11 C12N001/13 C12N001/36 C12N015/30 C12N001/10 C12R001:90.

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☐ 119. US 5889166A. DNA encoding immuno:dominant antigen of bovine Neospora - used in vaccines and in diagnosis of infection. ANDERSON, M L, et al. A61K038/00 A61K039/00 A61K039/002 A61K039/02 A61K039/12 A61P033/02 C07H021/02 C07H021/04 C07K001/00 C07K014/44 C12N015/09 C12P019/34 C12P021/02 C12Q001/68 G01N033/53 G01N033/554 G01N033/567 G01N033/569 C12N015/09 C12R001:90.

First Hit

L5: Entry 20 of 119

File: PGPB

Nov 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020165373
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020165373 A1

TITLE: Recombinant neospora antigens and their uses

PUBLICATION-DATE: November 7, 2002

Nota

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Conrad, Patricia C.	Davis	CA	US	
Barr, Bradd C.	Davis	CA	US	
Anderson, Mark L.	Davis	CA	US	
Sverlow, Karen W.	Vacaville	CA	US	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE	CODE
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA	Oakland	CA	US		02

APPL-NO: 09/ 957995 [PALM]
DATE FILED: September 21, 2001

RELATED-US-APPL-DATA:

Application 09/957995 is a continuation-of US application 09/281766, filed March 30, 1999, US Patent No. 6376196
Application 09/281766 is a continuation-of US application 08/645951, filed May 10, 1996, US Patent No. 5889166
Application 08/645951 is a continuation-of US application 08/327516, filed October 20, 1994, US Patent No. 5707617
Application 08/327516 is a continuation-of US application 08/215858, filed March 21, 1994, ABANDONED

INT-CL: [07] C07 H 21/02, C07 H 21/04

US-CL-PUBLISHED: 536/23.1

US-CL-CURRENT: 536/23.1

REPRESENTATIVE-FIGURES: NONE

ABSTRACT:

The present invention provides isolated bovine Neospora cultures. Also provided are recombinant immunodominant Neospora antigens. The cultures and antigens are used to develop diagnostic assays for the detection of Neospora infections in cattle and other animals. Also provided are pharmaceutical compositions for the treatment and prevention of Neospora infections.

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May 16, 2002

Jennifer
Homogenous

PUBLICATION-DATE: May 16, 2002\

NAME	CITY	STATE	COUNTRY	RULE-47
Brake, David A.	East Lyme	CT	US	
Campos, Manuel	Stonington	CT	US	

NAME	CITY	STATE	COUNTRY	TYPE	CODE
Pfizer Inc.				02	

APPL-NO: 10/ 036351 [PALM]
DATE FILED: November 9, 2001

Application 10/036351 is a division-of US application 09/138985, filed August 24, 1998, PENDING
Application is a non-provisional-of-provisional application 60/056956, filed August 26, 1997,

INT-CL: [07] A61 K 39/002

US-CL-PUBLISHED: 424/265.1
US-CL-CURRENT: 424/265.1

REPRESENTATIVE-FIGURES: NONE

The present invention provides an homogenate prepared from cells of Neospora, and vaccines against neosporosis prepared therefrom which are useful in the prevention of clinical disease and abortion in mammals.

SYSTEM:OS - DIALOG OneSearch

File 155:MEDLINE(R) 1966-2004/Feb W1

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*File 155: Medline is updating again (12-22-2003).

Please see HELP NEWS 154, for details.

File 5:Biosis Previews(R) 1969-2004/Feb W1

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File 34:SciSearch(R) Cited Ref Sci 1990-2004/Feb W1

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File 35:Dissertation Abs Online 1861-2004/Jan

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File 48:SPORTDiscus 1962-2004/Jan

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2001 (c) Action Potential

File 94:JICST-EPlus 1985-2004/Jan W4

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File 98:General Sci Abs/Full-Text 1984-2004/Jan

(c) 2004 The HW Wilson Co.

File 135:NewsRx Weekly Reports 1995-2004/Feb W1

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*File 135: New newsletters are now added. See Help News135 for the complete list of newsletters.

File 144:Pascal 1973-2004/Jan W4

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File 149:TGG Health&Wellness DB(SM) 1976-2004/Jan W4

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File 156:ToxFile 1965-2004/Jan W4

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File 159:Cancerlit 1975-2002/Oct

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File 162:Global Health 1983-2004/Dec

(c) 2004 CAB International

File 164:Allied & Complementary Medicine 1984-2004/Feb

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File 172:EMBASE Alert 2004/Feb W1

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File 266:FEDRIP 2004/Dec

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File 370:Science 1996-1999/Jul W3

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File 399:CA SEARCH(R) 1967-2004/UD=14006

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File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec

(c) 1998 Inst for Sci Info

*File 434: New prices as of 1/1/2004 per Information Provider request. See HELP RATES434.

File 444:New England Journal of Med. 1985-2004/Feb W2

(c) 2004 Mass. Med. Soc.

File 467:ExtraMED(tm) 2000/Dec

(c) 2001 Informania Ltd.

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Set Items Description

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Cost is in DialUnits

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Set	Items	Description
S1	5034	NEOSPOR?
S2	3489	S1/1997:2004
S3	1545	S1 NOT S2
S4	899	RD (unique items)
S5	433	S4 AND (CULTUR? OR ATTENU? OR PASSAG? OR SUBCULTUR? OR MON- KEY? OR KIDNEY? OR (NC?) OR CANINUM)
S6	264	S4 AND (VACCIN? OR IMMUNI? OR INJECT? OR ADMINIS?)
S7	1	(S5 OR S6) AND ADJUV?
S8	79	S5 AND S6
S9	4228	NEOSPORA?
S10	0	S8/1997:2004
S11	0	S10 AND CANINUM?
S12	0	S11 AND AU= (BRAKE? OR BLAGBURN? OR LINDSAY?)
S13	3239	S9/1997:2004
S14	2927	S13 AND CANINUM?
S15	23271	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
S16	224	S14 AND S15
S17	78	RD (unique items)

?s s9 not s13

4228 S9

3239 S13

S18 989 S9 NOT S13

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Set	Items	Description
S1	5034	NEOSPOR?
S2	3489	S1/1997:2004
S3	1545	S1 NOT S2
S4	899	RD (unique items)
S5	433	S4 AND (CULTUR? OR ATTENU? OR PASSAG? OR SUBCULTUR? OR MON- KEY? OR KIDNEY? OR (NC?) OR CANINUM)
S6	264	S4 AND (VACCIN? OR IMMUNI? OR INJECT? OR ADMINIS?)
S7	1	(S5 OR S6) AND ADJUV?
S8	79	S5 AND S6
S9	4228	NEOSPORA?
S10	0	S8/1997:2004
S11	0	S10 AND CANINUM?
S12	0	S11 AND AU= (BRAKE? OR BLAGBURN? OR LINDSAY?)
S13	3239	S9/1997:2004
S14	2927	S13 AND CANINUM?
S15	23271	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
S16	224	S14 AND S15
S17	78	RD (unique items)
S18	989	S9 NOT S13

?s s18 and s15

989 S18

23271 S15

S19 171 S18 AND S15

?s s19:1997:2004

>>>Term "1997" in invalid position

?s s19/1997:2004

Processing

Processed 10 of 26 files ...

>>>One or more prefixes are unsupported

>>> or undefined in one or more files.

>>>Year ranges not supported in one or more files

Completed processing all files

171 S19

35269616 PY=1997 : PY=2004

S20 0 S19/1997:2004

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Processing

Processed 10 of 26 files ...

Processing
 Completed processing all files
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 2442 NC1
 34 NC-1
 S21 72184 NC OR (NC (2N) 1) OR NC1 OR NC-1
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Processing
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 Processing
 Processed 20 of 26 files ...
 Processing
 Completed processing all files

 1094053 PARENT?
 37947 SUBCULT?
 4523685 CULTUR?
 423914 MONKEY?
 1908303 KIDNEY?
 660901 MARC?
 S22 8236484 PARENT? OR SUBCULT? OR CULTUR? OR MONKEY? OR KIDNEY? OR
 MARC?

?ds

Set	Items	Description
S1	5034	NEOSPOR?
S2	3489	S1/1997:2004
S3	1545	S1 NOT S2
S4	899	RD (unique items)
S5	433	S4 AND (CULTUR? OR ATTENU? OR PASSAG? OR SUBCULTUR? OR MON- KEY? OR KIDNEY? OR (NC?) OR CANINUM)
S6	264	S4 AND (VACCIN? OR IMMUNI? OR INJECT? OR ADMINIS?)
S7	1	(S5 OR S6) AND ADJUV?
S8	79	S5 AND S6
S9	4228	NEOSPORA?
S10	0	S8/1997:2004
S11	0	S10 AND CANINUM?
S12	0	S11 AND AU= (BRAKE? OR BLAGBURN? OR LINDSAY?)
S13	3239	S9/1997:2004
S14	2927	S13 AND CANINUM?
S15	23271	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
S16	224	S14 AND S15
S17	78	RD (unique items)
S18	989	S9 NOT S13
S19	171	S18 AND S15
S20	0	S19/1997:2004
S21	72184	NC OR (NC (2N) 1) OR NC1 OR NC-1
S22	8236484	PARENT? OR SUBCULT? OR CULTUR? OR MONKEY? OR KIDNEY? OR MA- RC?

?s s21 and s22

Processing
 Processed 10 of 26 files ...
 Completed processing all files

 72184 S21
 8236484 S22
 S23 13186 S21 AND S22
 ?s s19 and s21 and s22
 171 S19
 72184 S21
 8236484 S22
 S24 0 S19 AND S21 AND S22
 ?s s19 and s21
 171 S19
 72184 S21
 S25 17 S19 AND S21
 ?s s19 and s22
 171 S19

Experimental oral inoculations in birds to evaluate potential definitive hosts of Neospora caninum
1995

English Descriptors: Parasite; Pathogenic; Aves; Raptor; Mouse; Infectivity
; Transmission; Host specificity; Experimental study
Broad Descriptors: Vertebrata; Rodentia; Mammalia; Sporozoa; Protozoa;
Vertebrata; Rodentia; Mammalia; Sporozoa; Protozoa; **Neospora caninum**;
Vertebrata; Rodentia; Mammalia; Sporozoa; Protozoa

French Descriptors: Parasite; Pathogene; Aves; Rapace; Souris; Pouvoir
infectant; Transmission; Specificite hote; Etude experimentale

Classification Codes: 002B05E02D

28/8/67 (Item 2 from file: 144)
DIALOG(R)File 144:(c) 2004 INIST/CNRS. All rts. reserv.

12097118 PASCAL No.: 95-0326024
Vertical transmission of Neospora caninum in dogs
1995

English Descriptors: Parasite; Pathogenicity; Dog; Animal model;
Transmission; Placental transfer; Milk transfer
Broad Descriptors: Fissipedia; Carnivora; Mammalia; Vertebrata; Sporozoa;
Protozoa; Fissipedia; Carnivora; Mammalia; Vertebrata; Sporozoa; Protozoa
; **Neospora caninum**; Fissipedia; Carnivora; Mammalia; Vertebrata;
Sporozoa; Protozoa

French Descriptors: Parasite; Pouvoir pathogene; Chien; Modele animal;
Transmission; Passage transplacentaire; Passage lait; Neosporose

Classification Codes: 002B05E02D

28/8/68 (Item 3 from file: 144)
DIALOG(R)File 144:(c) 2004 INIST/CNRS. All rts. reserv.

12096832 PASCAL No.: 95-0325721
Mouse model for central nervous system Neospora caninum infections
1995

English Descriptors: Parasite; Pathogenicity; Animal model; Mouse; Central
nervous system; Sensitivity resistance; Histopathology
Broad Descriptors: Rodentia; Mammalia; Vertebrata; Sporozoa; Protozoa;
Rodentia; Mammalia; Vertebrata; Sporozoa; Protozoa; **Neospora caninum**;
Rodentia; Mammalia; Vertebrata; Sporozoa; Protozoa

French Descriptors: Parasite; Pouvoir pathogene; Modele animal; Souris;
Systeme nerveux central; Sensibilite resistance; Histopathologie;
Neosporose

Classification Codes: 002B05E02D

28/8/69 (Item 4 from file: 144)
DIALOG(R)File 144:(c) 2004 INIST/CNRS. All rts. reserv.

11260853 PASCAL No.: 94-0079674
Neosporosis
1993

English Descriptors: Host parasite relation; Molecular structure;
Microorganism culture ; Experimental disease; Characterization;
Diagnosis; Review; Life cycle; Livestock; Dog; Abortion

Identifiers--KeyWords Plus: ULTRASTRUCTURAL-LOCALIZATION; HYBRIDOMA
ANTIBODIES; ANTIGENIC SITES; SPOROZOITES; TENELLA; SPECIFICITY;
PARASITE; PENETRATION; REACTIVITY; SPORO CYSTS
Research Fronts: 90-3110 002 (IDENTIFICATION OF FRAGMENTS;
CORTICOSTEROIDS INCREASE LIPOCORTIN-I; RAS ADENYLATE-CYCLASE PATHWAY;
HEAT-SHOCK PROTEIN HSP70 FAMILY)

28/8/51 (Item 13 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

01913439 Genuine Article#: JK798 Number of References: 24
Title: INDUCED TRANSPLACENTAL TRANSMISSION OF NEOSPOA -CANINUM IN CATTLE
(Abstract Available)
Journal Subject Category: VETERINARY MEDICINE
Descriptors--Author Keywords: BOVINE SPECIES ; NEOSPOA -CANINUM ;
PLACENTA
Identifiers--KeyWords Plus: INFECTION; APICOMPLEXA; PROTOZOA; DOGS; MICE;
CATS
Research Fronts: 90-3598 002 (FATAL CONGENITAL NEOSPOA -CANINUM
INFECTION; ACUTE DISSEMINATED TOXOPLASMOSIS; FELINE IMMUNODEFICIENCY
VIRUS; PREGNANT SHEEP)

28/8/52 (Item 14 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

01525334 Genuine Article#: HF448 Number of References: 13
Title: FACTORS AFFECTING THE SURVIVAL OF NEOSPOA -CANINUM BRADYZOITES IN
MURINE TISSUES (Abstract Available)
Journal Subject Category: PARASITOLOGY
Identifiers--KeyWords Plus: APICOMPLEXA INFECTIONS; INVITRO DEVELOPMENT;
PROTOZOA; DOGS; MICE
Research Fronts: 90-3598 005 (FATAL CONGENITAL NEOSPOA -CANINUM
INFECTION; ACUTE DISSEMINATED TOXOPLASMOSIS; FELINE IMMUNODEFICIENCY
VIRUS; PREGNANT SHEEP)

28/8/53 (Item 15 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

00829650 Genuine Article#: EZ739 Number of References: 17
Title: ULTRASTRUCTURE OF DEVELOPING ISOSPOA-SUIS IN CULTURED -CELLS (
Abstract Available)
Journal Subject Category: VETERINARY MEDICINE
Identifiers--KeyWords Plus: NEOSPOA -CANINUM; SWINE; ENDODYOGENY;
BIESTER; PIGS

28/8/54 (Item 16 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

00086065 Genuine Article#: CL886 Number of References: 12
Title: EVALUATION OF ANTI-COCCIDIAL DRUGS INHIBITION OF NEOSPOA -CANINUM
DEVELOPMENT IN CELL- CULTURES
Journal Subject Category: PARASITOLOGY

28/8/55 (Item 1 from file: 71)
00263263 95069982
Vertical transmission of Neospora caninum in dogs
PUBLICATION DATE: 19950000

28/8/56 (Item 1 from file: 73)
06382887 EMBASE No: 1996036044
Demonstration of synergistic effects of sulfonamides and dihydrofolate
reductase/thymidylate synthase inhibitors against Neospora caninum
tachyzoites in cultured cells, and characterization of mutants resistant

NEOSPORA -CANINUM IN CATTLE; DOMESTIC RABBITS)

28/8/45 (Item 7 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

03252444 Genuine Article#: NQ742 Number of References: 26
Title: EVALUATION OF THE SAFETY AND EFFICACY OF VACCINATION OF NURSING RIGS WITH LIVING TACHYZOITES OF 2 STRAINS OF TOXOPLASMA-GONDII (Abstract Available)
Journal Subject Category: PARASITOLOGY
Identifiers--KeyWords Plus: **NEOSPORA -CANINUM; PIGS; MICE; PATHOGENICITY; CHALLENGE; IMMUNITY; PERSISTENCE; HAMSTERS; OOCYSTS**
Research Fronts: 92-0906 003 (SEROPREVALENCE OF TOXOPLASMA-GONDII; **NEOSPORA -CANINUM IN CATTLE; DOMESTIC RABBITS**)

28/8/46 (Item 8 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

02864192 Genuine Article#: MK695 Number of References: 0
Title: DETECTION OF NEOSPORA -CANINUM IN TISSUE-SECTIONS USING A MURINE MONOCLONAL-ANTIBODY (Abstract Available)
Journal Subject Category: VETERINARY SCIENCES

28/8/47 (Item 9 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

02362397 Genuine Article#: KW476 Number of References: 24
Title: ULTRASTRUCTURAL DETERMINATION OF CYSTOGENESIS BY VARIOUS TOXOPLASMA-GONDII ISOLATES IN CELL- CULTURE (Abstract Available)
Journal Subject Category: PARASITOLOGY
Identifiers--KeyWords Plus: CYST FORMATION; MICE; PATHOGENICITY; ENCEPHALITIS; BRADYZOITES; TACHYZOITES; ANTIGENS; INVITRO; CATS
Research Fronts: 91-3815 001 (CEREBRAL TOXOPLASMOSIS; MAINTENANCE THERAPY; AIDS PATIENTS MIMICKING HIV-RELATED DEMENTIA)
91-5021 001 (TOXOPLASMA-GONDII TISSUE CYSTS; **NEOSPORA -LIKE PROTOZOAN INFECTION; ENCEPHALITIS IN A RACCOON (PROCYON-LOTOR); ETIOLOGIC AGENT**)

28/8/48 (Item 10 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

02189830 Genuine Article#: KH568 Number of References: 26
Title: USE OF INFECTED CULTURED -CELLS TO COMPARE ULTRASTRUCTURAL FEATURES OF NEOSPORA -CANINUM FROM DOGS AND TOXOPLASMA-GONDII (Abstract Available)
Journal Subject Category: VETERINARY SCIENCES
Identifiers--KeyWords Plus: CYST-FORMING SPOROZOON; SURFACE-PROTEINS; APICOMPLEXA; REDISTRIBUTION; PHAGOSOMES; SECRETION; PROTOZOA

28/8/49 (Item 11 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

02111208 Genuine Article#: KC056 Number of References: 0
Title: NEOSPORA -CANINUM INFECTION IN ENGLISH SPRINGER-SPANIEL LITTERMATES - DIAGNOSTIC EVALUATION AND ORGANISM ISOLATION (Abstract Available)
Journal Subject Category: VETERINARY SCIENCES

28/8/50 (Item 12 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

02095724 Genuine Article#: KA596 Number of References: 26
Title: DEVELOPMENT AND CHARACTERIZATION OF MONOCLONAL-ANTIBODIES TO 1ST-GENERATION MEROZOITES OF EIMERIA BOVIS (Abstract Available)
Journal Subject Category: PARASITOLOGY, VETERINARY SCIENCES

INVITRO; INVIVO; POTENT; DIAGNOSIS
Research Fronts: 94-0089 001 (PNEUMOCYSTIS-CARINII PNEUMONIA; PROPHYLAXIS
FOR OPPORTUNISTIC INFECTIONS; AIDS CLINICAL-TRIALS GROUP-044)

28/8/40 (Item 2 from file: 34)

DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

04470045 Genuine Article#: TF343 Number of References: 13
Title: CANINE CUTANEOUS NEOSPOROSIS - CLINICAL IMPROVEMENT WITH CLINDAMYCIN
(Abstract Available)
Journal Subject Category: VETERINARY SCIENCES
Descriptors--Author Keywords: DOG ; DERMATITIS ; NEOSPOROSIS ; **NEOSPORA**
CANINUM ; CLINDAMYCIN ; TOXOPLASMA GONDII ; TOXOPLASMOSIS ;
LYMPHOSARCOMA
Identifiers--KeyWords Plus: TOXOPLASMA-GONDII; DOGS
Research Fronts: 93-5045 001 (FELINE IMMUNODEFICIENCY VIRUS; CATS
INFECTED; HISTOLOGICALLY CONFIRMED CLINICAL TOXOPLASMOSIS)

28/8/41 (Item 3 from file: 34)

DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

04406375 Genuine Article#: TA700 Number of References: 14
Title: EXPERIMENTAL ORAL INOCULATIONS IN BIRDS TO EVALUATE POTENTIAL
DEFINITIVE HOSTS OF NEOSPORA -CANINUM (Abstract Available)
Journal Subject Category: PARASITOLOGY
Identifiers--KeyWords Plus: INFECTION; DOGS; APICOMPLEXA; PROTOZOA
Research Fronts: 93-4825 001 (TOXOPLASMA-GONDII INFECTION; AIDS PATIENT;
RANDOM AMPLIFIED POLYMORPHIC DNA ASSAY AMONG THERMAL CYCLERS)
93-5045 001 (FELINE IMMUNODEFICIENCY VIRUS; CATS INFECTED;
HISTOLOGICALLY CONFIRMED CLINICAL TOXOPLASMOSIS)

28/8/42 (Item 4 from file: 34)

DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

03918296 Genuine Article#: QR337 Number of References: 17
Title: MOUSE MODEL FOR CENTRAL-NERVOUS-SYSTEM NEOSPORA -CANINUM INFECTIONS
(Abstract Available)
Journal Subject Category: PARASITOLOGY
Identifiers--KeyWords Plus: TOXOPLASMA-GONDII; APICOMPLEXA INFECTIONS;
PROTOZOA; MICE; ENCEPHALITIS; BRADYZOITES; RESISTANCE; DOGS

28/8/43 (Item 5 from file: 34)

DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

03918275 Genuine Article#: QR337 Number of References: 26
Title: VERTICAL TRANSMISSION OF NEOSPORA -CANINUM IN DOGS (Abstract
Available)
Journal Subject Category: PARASITOLOGY
Identifiers--KeyWords Plus: PROTOZOAL INFECTIONS; TOXOPLASMA-GONDII;
APICOMPLEXA
Research Fronts: 93-5045 002 (FELINE IMMUNODEFICIENCY VIRUS; CATS
INFECTED; HISTOLOGICALLY CONFIRMED CLINICAL TOXOPLASMOSIS)

28/8/44 (Item 6 from file: 34)

DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

03307811 Genuine Article#: NV280 Number of References: 32
Title: EXAMINATION OF THE ACTIVITIES OF 43 CHEMOTHERAPEUTIC-AGENTS AGAINST
NEOSPORA -CANINUM TACHYZOITES IN CULTURED -CELLS (Abstract Available)
Journal Subject Category: VETERINARY SCIENCES
Identifiers--KeyWords Plus: TOXOPLASMA-GONDII; ANTIMICROBIAL AGENTS;
INVITRO; APICOMPLEXA; CLINDAMYCIN; INFECTION; DOGS; PROTOZOAN;
SULFADIAZINE; POLYMYOSITIS
Research Fronts: 92-0906 002 (SEROPREVALENCE OF TOXOPLASMA-GONDII;

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      8236484  S22
    S26      57  S19 AND S22
?s s25 and s26
      17  S25
      57  S26
    S27      0  S25 AND S26
?s s25 or s26
      17  S25
      57  S26
    S28      74  S25 OR S26
?t s28/free/all
>>>"FREE" is not a valid format name in file(s): 399

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28/8/1 (Item 1 from file: 155)
 DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

10540497 96351915 PMID: 8720241
Demonstration of synergistic effects of sulfonamides and dihydrofolate reductase/thymidylate synthase inhibitors against Neospora caninum tachyzoites in cultured cells, and characterization of mutants resistant to pyrimethamine.

Jan 1996

Tags: Animal; Comparative Study; Human; Male; Support, Non-U.S. Gov't
 Descriptors: Anti-Infective Agents--pharmacology--PD; *Coccidiostats--pharmacology--PD; *Enzyme Inhibitors--pharmacology--PD; * **Neospora** --drug effects--DE; *Sulfonamides--pharmacology--PD; Cell Line; Drug Resistance; Drug Synergism; Fibroblasts; Folic Acid Antagonists--pharmacology--PD; **Neospora** --growth and development--GD; Pyrimethamine--pharmacology--PD; Pyrimidines--pharmacology--PD; Skin; Tetrahydrofolate Dehydrogenase; Thymidylate Synthase--antagonists and inhibitors--AI; Trimethoprim--pharmacology--PD

CAS Registry No.: 0 (Anti-Infective Agents); 0 (Coccidiostats); 0 (Enzyme Inhibitors); 0 (Folic Acid Antagonists); 0 (Pyrimidines); 0 (Sulfonamides); 5355-16-8 (diaveridine); 58-14-0 (Pyrimethamine); 6981-18-6 (ormetoprim); 738-70-5 (Trimethoprim)
 Enzyme No.: EC 1.5.1.3 (Tetrahydrofolate Dehydrogenase); EC 2.1.1.45 (Thymidylate Synthase)

28/8/2 (Item 2 from file: 155)
 DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

10242210 96043576 PMID: 7472875
Experimental oral inoculations in birds to evaluate potential definitive hosts of Neospora caninum.

Oct 1995

Tags: Animal; Support, Non-U.S. Gov't
 Descriptors: Bird Diseases--parasitology--PS; *Coccidiosis--veterinary--VE; * **Neospora** --pathogenicity--PY; Birds--parasitology--PS; Coccidiosis--parasitology--PS; Feces--parasitology--PS; Mice; **Neospora** --isolation and purification--IP; Parasite Egg Count; Rats

28/8/3 (Item 3 from file: 155)
 DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

08534124 95222422 PMID: 7707216
Mouse model for central nervous system Neospora caninum infections.

Apr 1995

Tags: Animal; Female; Support, Non-U.S. Gov't
 Descriptors: Brain Diseases--parasitology--PS; *Coccidiosis--parasitology--PS; *Disease Models, Animal; *Mice, Inbred BALB C; * **Neospora** --physiology--PH; Brain--parasitology--PS; Brain--pathology--PA; Mice

28/8/4 (Item 4 from file: 155)
 DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

08534103 95222401 PMID: 7707195

Vertical transmission of Neospora caninum in dogs.

Apr 1995

Tags: Animal; Female; Pregnancy; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--transmission--TM; *Disease Transmission, Vertical; * Neospora ; *Pregnancy Complications, Parasitic; Animals, Newborn; Antibodies, Protozoan--blood--BL; Coccidiosis--congenital--CN; Coccidiosis--immunology--IM; Disease Models, Animal; Dogs; Fetal Death --etiology--ET; Fetal Resorption--etiology--ET; Neospora --immunology--IM; Pregnancy Complications, Parasitic--immunology--IM

CAS Registry No.: 0 (Antibodies, Protozoan)

28/8/5 (Item 5 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

08505625 95193901 PMID: 7887516

Characterization of a murine monoclonal antibody generated against Neospora caninum tachyzoites by use of western blot analysis and immunoelectron microscopy.

Dec 1994

Tags: Animal; Human; Support, Non-U.S. Gov't

Descriptors: Antibodies, Monoclonal--immunology--IM; *Antibodies, Protozoan--immunology--IM; * Neospora --immunology--IM; Antibodies, Monoclonal--biosynthesis--BI; Antibodies, Protozoan--biosynthesis--BI; Blotting, Western; Cells, Cultured ; Mice; Microscopy, Immunoelectron; Neospora --growth and development--GD

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antibodies, Protozoan)

28/8/6 (Item 6 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

08381352 95069326 PMID: 7978638

Examination of the activities of 43 chemotherapeutic agents against Neospora caninum tachyzoites in cultured cells.

Jul 1994

Tags: Animal; Human; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiostats--pharmacology--PD; * Neospora --drug effects --DE; Antibiotics, Macrolide--pharmacology--PD; Antiprotozoal Agents --pharmacology--PD; Cattle; Cells, Cultured ; Dogs; Drug Evaluation, Preclinical--veterinary--VE; Fibroblasts; Skin; Sulfonamides--pharmacology--PD; Tetracyclines--pharmacology--PD

CAS Registry No.: 0 (Antibiotics, Macrolide); 0 (Antiprotozoal Agents); 0 (Coccidiostats); 0 (Sulfonamides); 0 (Tetracyclines)

28/8/7 (Item 7 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

08048882 94114619 PMID: 8286458

Detection of Neospora caninum in tissue sections using a murine monoclonal antibody.

Oct 1993

Tags: Animal; Female; Human; Male; Support, Non-U.S. Gov't

Descriptors: *Antibodies, Monoclonal; *Mycoses--veterinary--VE; *Neospora--isolation and purification--IP; Cell Line; Fluorescent Antibody Technique; Immunoglobulin G; Immunohistochemistry; Mice; Mice, Inbred BALB C--immunology--IM; Mycoses--diagnosis--DI

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Immunoglobulin G)

28/8/8 (Item 8 from file: 155)

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07696281 93151531 PMID: 8427452

Use of infected cultured cells to compare ultrastructural features of Neospora caninum from dogs and Toxoplasma gondii.

Jan 1993

Tags: Animal; Comparative Study; Human; Support, Non-U.S. Gov't
Descriptors: *Apicomplexa--ultrastructure--UL; *Dogs--parasitology--PS;
*Toxoplasma--ultrastructure--UL; Cattle; Cells, Cultured

28/8/9 (Item 9 from file: 155)

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07677489 93132737 PMID: 1484374

Neospora caninum infection in English Springer Spaniel littermates.
Diagnostic evaluation and organism isolation.

Nov-Dec 1992

Tags: Animal; Case Report; Male; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

Descriptors: *Apicomplexa; *Dog Diseases--diagnosis--DI; *Dog Diseases--parasitology--PS; *Protozoan Infections, Animal; Apicomplexa--isolation and purification--IP; Dogs; Electromyography; Gerbillinae; Neurons--parasitology--PS; Neurons--pathology--PA; Peritoneal Cavity--parasitology--PS; Polymyositis--parasitology--PS; Polymyositis--veterinary--VE; Polyradiculopathy--parasitology--PS; Polyradiculopathy--veterinary--VE; Protozoan Infections--diagnosis--DI

28/8/10 (Item 10 from file: 155)

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07647409 93102609 PMID: 1281590

Development and characterization of monoclonal antibodies to first-generation merozoites of Eimeria bovis.

Oct 1992

Tags: Animal; Male; Support, Non-U.S. Gov't

Descriptors: *Antibodies, Monoclonal--biosynthesis--BI; *Antibodies, Protozoan--biosynthesis--BI; *Eimeria--immunology--IM; Antibodies, Monoclonal--immunology--IM; Antibodies, Protozoan--immunology--IM; Antibody Specificity; Antigens, Protozoan--immunology--IM; Cattle; Cattle Diseases--immunology--IM; Coccidiosis--immunology--IM; Coccidiosis--veterinary--VE; Cross Reactions; Epitopes--immunology--IM; Fluorescent Antibody Technique; Hybridomas; Immunoblotting; Immunodiffusion; Mice

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan); 0 (Epitopes)

28/8/11 (Item 11 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

07560252 93015176 PMID: 1399772

Induced transplacental transmission of Neospora caninum in cattle.

Sep 1 1992

Tags: Animal; Female; Pregnancy

Descriptors: *Apicomplexa; *Cattle Diseases--transmission--TM; *Fetal Diseases--veterinary--VE; *Pregnancy Complications; Parasitic--veterinary--VE; *Protozoan Infections, Animal; Abortion, Veterinary--pathology--PA; Apicomplexa--isolation and purification--IP; Biological Assay; Brain--parasitology--PS; Brain--pathology--PA; Cattle; Cattle Diseases--pathology--PA; Fetal Diseases--pathology--PA; Fetus--parasitology--PS; Fetus--pathology--PA; Mice; Mice, Inbred BALB C; Placenta--pathology--PA; Pregnancy Complications, Parasitic--pathology--PA; Protozoan Infections--pathology--PA; Protozoan Infections--transmission--TM

28/8/12 (Item 12 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

07285886 92148610 PMID: 1738071

Factors affecting the survival of Neospora caninum bradyzoites in murine tissues.

Feb 1992

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: *Apicomplexa--physiology--PH; *Brain--parasitology--PS;

*Protozoan Infections--parasitology--PS; Antibodies, Protozoan--blood--BL;
Apicomplexa--immunology--IM; Cold; Freezing; Mice
CAS Registry No.: 0 (Antibodies, Protozoan)

28/8/13 (Item 13 from file: 155)
DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06809584 91049302 PMID: 2238386

Neosporosis in cats.
Sep 1990

Tags: Animal; Female; Male
Descriptors: *Cat Diseases--diagnosis--DI; *Protozoan Infections, Animal
; Adrenal Glands--pathology--PA; Brain--pathology--PA; Cat Diseases
--pathology--PA; Cats; Diagnosis, Differential; Kidney --pathology--PA;
Lung--pathology--PA; Muscles--pathology--PA; Necrosis; Protozoan Infections
--diagnosis--DI; Protozoan Infections--pathology--PA; Spinal Cord
--pathology--PA

28/8/14 (Item 14 from file: 155)
DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06690991 90316887 PMID: 2370226

Diagnosis and treatment of Neospora caninum infection in a dog.
Jul 1 1990

Tags: Animal; Case Report; Male
Descriptors: *Dog Diseases--diagnosis--DI; *Protozoan Infections, Animal
; Antibodies, Protozoan--analysis--AN; Biopsy--veterinary--VE; Clindamycin
--therapeutic use--TU; Dog Diseases--drug therapy--DT; Dogs; Drug Therapy,
Combination; Electromyography; Hindlimb--physiopathology--PP; Muscles
--parasitology--PS; Muscles--physiopathology--PP; Protozoa--immunology--IM
; Protozoa--isolation and purification--IP; Protozoan Infections
--diagnosis--DI; Protozoan Infections--drug therapy--DT; Sulfadiazine
--therapeutic use--TU; Trimethoprim--therapeutic use--TU
CAS Registry No.: 0 (Antibodies, Protozoan); 18323-44-9 (Clindamycin)
; 68-35-9 (Sulfadiazine); 738-70-5 (Trimethoprim)

28/8/15 (Item 15 from file: 155)
DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06690807 90316703 PMID: 2370115

Infection of mice with Neospora caninum (Protozoa: Apicomplexa) does
not protect against challenge with Toxoplasma gondii.
Aug 1990

Tags: Animal; Female; Support, U.S. Gov't, Non-P.H.S.
Descriptors: *Immunization; *Protozoa--immunology--IM; *Toxoplasmosis,
Animal--prevention and control--PC; Antibodies, Protozoan--immunology--IM;
Cross Reactions; Mice; Survival Rate; Toxoplasmosis, Animal--immunology--IM
; Toxoplasmosis, Animal--mortality--MO; Vaccines
CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Vaccines)

28/8/16 (Item 16 from file: 155)
DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06652937 90278626 PMID: 2112599

Infections in mice with tachyzoites and bradyzoites of Neospora caninum
(Protozoa: Apicomplexa).
Jun 1990

Tags: Animal; Female
Descriptors: *Protozoan Infections--pathology--PA; Brain--parasitology
--PS; Disease Models, Animal; Mice; Pepsin A--pharmacology--PD; Protozoa
--drug effects--DE; Protozoan Infections--parasitology--PS; Trypsin
--pharmacology--PD
Enzyme No.: EC 3.4.21.4 (Trypsin); EC 3.4.23.1 (Pepsin A)

28/8/17 (Item 17 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06508310 90133272 PMID: 2614609

Evaluation of anti-coccidial drugs' inhibition of Neospora caninum development in cell cultures .

Dec 1989

Tags: Animal

Descriptors: *Coccidiostats--pharmacology--PD; *Monocytes--parasitology--PS; *Protozoa--drug effects--DE; Cattle; Cells, **Cultured** ; Dog Diseases--parasitology--PS; Dogs; Protozoa--growth and development--GD; Protozoan Infections--parasitology--PS; Protozoan Infections, Animal

CAS Registry No.: 0 (Coccidiostats)

28/8/18 (Item 18 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06400106 90024541 PMID: 2802335

Transplacental Neospora caninum infection in dogs.

Sep 1989

Tags: Animal; Female; Pregnancy

Descriptors: *Dog Diseases--congenital--CN; *Placenta--parasitology--PS; *Protozoan Infections, Animal; Dog Diseases--transmission--TM; Dogs; Pregnancy Complications, Infectious--veterinary--VE; Protozoan Infections--congenital--CN; Protozoan Infections--transmission--TM

28/8/19 (Item 19 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06387210 90011610 PMID: 2795379

Transplacental Neospora caninum infection in cats.

Oct 1989

Tags: Animal; Female; Pregnancy

Descriptors: *Cat Diseases--transmission--TM; *Placenta--parasitology--PS; *Placenta Diseases--veterinary--VE; *Protozoa--isolation and purification--IP; *Protozoan Infections, Animal; Antibodies, Protozoan--analysis--AN; Cat Diseases--congenital--CN; Cat Diseases--parasitology--PS; Cats; Maternal-Fetal Exchange; Placenta Diseases--parasitology--PS; Pregnancy Complications, Infectious--parasitology--PS; Pregnancy Complications, Infectious--veterinary--VE; Protozoa--immunology--IM; Protozoan Infections--congenital--CN; Protozoan Infections--parasitology--PS; Protozoan Infections--transmission--TM

CAS Registry No.: 0 (Antibodies, Protozoan)

28/8/20 (Item 20 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06125932 89141279 PMID: 2493088

In vitro development of Neospora caninum (Protozoa: Apicomplexa) from dogs.

Feb 1989

Tags: Animal

Descriptors: *Apicomplexa--growth and development--GD; Cells, **Cultured** ; Dogs; Serial Passage

28/8/21 (Item 21 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06125927 89141274 PMID: 2493087

Fatal Neospora caninum infection in kittens.

Feb 1989

Tags: Animal

Descriptors: *Cat Diseases--parasitology--PS; *Protozoan Infections, Animal; Animals, Newborn--parasitology--PS; Apicomplexa; Cat Diseases--mortality--MO; Cat Diseases--pathology--PA; Cats; **Kidney** --parasitology

--PS; Kidney --pathology--PA; Liver--parasitology--PS; Liver--pathology
--PA; Protozoan Infections--mortality--MO; Protozoan Infections--pathology
--PA

28/8/22 (Item 22 from file: 155)

DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

06064499 89079511 PMID: 3144521

Neonatal Neospora caninum infection in dogs: isolation of the causative agent and experimental transmission.

Nov 15 1988

Tags: Animal; Female; Male

Descriptors: *Animals, Newborn--parasitology--PS; *Dog Diseases
--parasitology--PS; *Protozoan Infections, Animal; Apicomplexa--isolation
and purification--IP; Dog Diseases--pathology--PA; Dog Diseases
--transmission--TM; Dogs; Protozoan Infections--pathology--PA; Protozoan
Infections--transmission--TM

28/8/23 (Item 1 from file: 5)

0010208115 BIOSIS NO.: 199698675948

Demonstration of synergistic effects of sulfonamides and dihydrofolate reductase/thymidylate synthase inhibitors against Neospora caninum tachyzoites in cultured cells, and characterization of mutants resistant to pyrimethamine

1996

28/8/24 (Item 2 from file: 5)

0010099577 BIOSIS NO.: 199698567410

Experimental oral inoculations in birds to evaluate potential definitive hosts of Neospora caninum

1995

28/8/25 (Item 3 from file: 5)

0009803286 BIOSIS NO.: 199598271119

Vertical transmission of Neospora caninum in dogs

1995

28/8/26 (Item 4 from file: 5)

0009803194 BIOSIS NO.: 199598271027

Mouse model for central nervous system Neospora caninum infections

1995

28/8/27 (Item 5 from file: 5)

0009378911 BIOSIS NO.: 199497400196

Examination of the activities of 43 chemotherapeutic agents against Neospora caninum tachyzoites in cultured cells

1994

28/8/28 (Item 6 from file: 5)

0008786564 BIOSIS NO.: 199395088830

Use of infected cultured cells to compare ultrastructural features of Neospora caninum from dogs and Toxoplasma gondii

1993

28/8/29 (Item 7 from file: 5)

0008748572 BIOSIS NO.: 199395050838

Development and characterization of monoclonal antibodies to first-generation merozoites of Eimeria bovis

1992

28/8/30 (Item 8 from file: 5)
0008415930 BIOSIS NO.: 199294117771
INDUCED TRANSPLACENTAL TRANSMISSION OF NEOSPOA -CANINUM IN CATTLE
1992

28/8/31 (Item 9 from file: 5)
0008259937 BIOSIS NO.: 199293102828
FACTORS AFFECTING THE SURVIVAL OF NEOSPOA -CANINUM BRADYZOITES IN MURINE
TISSUES
1992

28/8/32 (Item 10 from file: 5)
0007305712 BIOSIS NO.: 199090090191
INFECTION OF MICE WITH NEOSPOA -CANINUM PROTOZOA APICOMPLEXA DOES NOT
PROTECT AGAINST CHALLENGE WITH TOXOPLASMA-GONDII
1990

28/8/33 (Item 11 from file: 5)
0007282113 BIOSIS NO.: 199090066592
INFECTIONS IN MICE WITH TACHYZOITES AND BRADYZOITES OF NEOSPOA -CANINUM
PROTOZOA APICOMPLEXA
1990

28/8/34 (Item 12 from file: 5)
0007162513 BIOSIS NO.: 199089080404
EVALUATION OF ANTI-COCCIDIAL DRUGS' INHIBITION OF NEOSPOA -CANINUM
DEVELOPMENT IN CELL CULTURES
1989

28/8/35 (Item 13 from file: 5)
0006818614 BIOSIS NO.: 198988123729
TRANSPLACENTAL NEOSPOA -CANINUM INFECTION IN CATS
1989

28/8/36 (Item 14 from file: 5)
0006796451 BIOSIS NO.: 198988111566
TRANSPLACENTAL NEOSPOA -CANINUM INFECTION IN DOGS
1989

28/8/37 (Item 15 from file: 5)
0006679031 BIOSIS NO.: 198987126922
IN-VITRO DEVELOPMENT OF NEOSPOA -CANINUM PROTOZOA APICOMPLEXA FROM DOGS
1989

28/8/38 (Item 16 from file: 5)
0006592744 BIOSIS NO.: 198987040635
NEONATAL NEOSPOA -CANINUM INFECTION IN DOGS ISOLATION OF THE CAUSATIVE
AGENT AND EXPERIMENTAL TRANSMISSION
1988

28/8/39 (Item 1 from file: 34)
DIALOG(R)File 34:(c) 2004 Inst for Sci Info. All rts. reserv.

05069638 Genuine Article#: TN538 Number of References: 36
Title: DEMONSTRATION OF SYNERGISTIC EFFECTS OF SULFONAMIDES AND
DIHYDROFOLATE-REDUCTASE THYMIDYLATE SYNTHASE INHIBITORS AGAINST
NEOSPOA -CANINUM TACHYZOITES IN CULTURED -CELLS, AND CHARACTERIZATION
OF MUTANTS RESISTANT TO PYRIMETHAMINE (Abstract Available)
Journal Subject Category: VETERINARY SCIENCES
Identifiers--KeyWords Plus: LIPID-SOLUBLE ANTIFOLATE; TOXOPLASMA-GONDII;

to pyrimethamine
1996

28/8/57 (Item 2 from file: 73)
06282837 EMBASE No: 1995320599
Experimental oral inoculations in birds to evaluate potential definitive
hosts of *Neospora caninum*
1995

28/8/58 (Item 3 from file: 73)
06088245 EMBASE No: 1995118734
Mouse model for central nervous system *Neospora caninum* infections
1995

28/8/59 (Item 4 from file: 73)
06088224 EMBASE No: 1995118713
Vertical transmission of *Neospora caninum* in dogs
1995

28/8/60 (Item 5 from file: 73)
05831574 EMBASE No: 1994239345
Examination of the activities of 43 chemotherapeutic agents against
Neospora caninum tachyzoites in cultured cells
1994

28/8/61 (Item 6 from file: 73)
05215570 EMBASE No: 1992355804
Development and characterization of monoclonal antibodies to
first-generation merozoites of *Eimeria bovis*
1992

28/8/62 (Item 7 from file: 73)
04982704 EMBASE No: 1992122920
Factors affecting the survival of *Neospora caninum* bradyzoites in
murine tissues
1992

28/8/63 (Item 8 from file: 73)
04417080 EMBASE No: 1990305189
Infections in mice with tachyzoites and bradyzoites of *Neospora caninum*
(protozoa: Apicomplexa)
1990

28/8/64 (Item 9 from file: 73)
04346064 EMBASE No: 1990234127
Infection of mice with *Neospora caninum* (protozoa: apicomplexa) does
not protect against challenge with *Toxoplasma gondii*
1990

28/8/65 (Item 10 from file: 73)
04216981 EMBASE No: 1990099523
Evaluation of anti-coccidial drugs' inhibition of *Neospora caninum*
development in cell cultures
1989

28/8/66 (Item 1 from file: 144)
DIALOG(R) File 144:(c) 2004 INIST/CNRS. All rts. reserv.
12370390 PASCAL No.: 96-0016037

Broad Descriptors: Aufbereiten; Protozoal disease; Infection; Treatment;
Protozoa; Veterinary medicine; Fissipedia; Carnivora; Mammalia;
Vertebrata; Pregnancy disorders; Protozoose; Infection; Traitement;
Protozoa; Medecine veterinaire; Fissipedia; Carnivora; Mammalia;
Vertebrata; Gestation pathologie; Protozoosis; Infeccion; Tratamiento;
Protozoa; Medicina veterinaria; Fissipedia; Carnivora; Mammalia;
Vertebrata; Gestacion patologia

French Descriptors: Relation hote parasite; Structure moleculaire; **Culture**
microorganisme; Pathologie experimentale; Characterisation; Diagnostic;
Article synthese; Cycle developpement; Betail; Chien; Avortement;
Neospora caninum

Classification Codes: 002B05E02C

28/8/70 (Item 5 from file: 144)
DIALOG(R)File 144:(c) 2004 INIST/CNRS. All rts. reserv.

09047814 PASCAL No.: 90-0216144
Evaluation of anti-coccidial Drugs' inhibition of Neospora caninum
development in cell cultures
1989

English Descriptors: Protozoal disease; Dog; Microorganism growth; In vitro
; Monocyte; Anticoccidious; Parasitoid; Animal
Broad Descriptors: Infection; Fissipedia; Carnivora; Mammalia; Vertebrata;
Infection; Fissipedia; Carnivora; Mammalia; Vertebrata; Infeccion;
Fissipedia; Carnivora; Mammalia; Vertebrata
French Descriptors: Protozoose; Chien; Multiplication microorganisme; In
vitro; Monocyte; Trimethoprime; Pyrimethamine; Lasalocide; Piritrexime;
Anticoccidien; Antiparasitaire; Animal; **Neospora caninum**

Classification Codes: 002B02S06

28/8/71 (Item 1 from file: 156)
DIALOG(R)File 156:(c) format only 2004 The Dialog Corporation. All rts.
reserv.

02351092 96351915 NLM Doc No: 8720241
Demonstration of synergistic effects of sulfonamides and dihydrofolate
reductase/thymidylate synthase inhibitors against Neospora caninum
tachyzoites in cultured cells, and characterization of mutants resistant
to pyrimethamine.
Jan 1996

Tags: Animal; Comparative Study; Human; Male; Support, Non-U.S. Gov't
Descriptors: Anti-Infective Agents--pharmacology--PD; *Coccidiostats
--pharmacology--PD; *Enzyme Inhibitors--pharmacology--PD; * **Neospora** --drug
effects--DE; *Sulfonamides--pharmacology--PD; Cell Line; Drug Resistance;
Drug Synergism; Fibroblasts; Folic Acid Antagonists--pharmacology--PD;
Neospora --growth and development--GD; Pyrimethamine--pharmacology--PD;
Pyrimidines--pharmacology--PD; Skin; Tetrahydrofolate Dehydrogenase;
Thymidylate Synthase--antagonists and inhibitors--AI; Trimethoprim
--pharmacology--PD
CAS Registry No.: 0 (Anti-Infective Agents); 0 (Coccidiostats); 0
(Enzyme Inhibitors); 0 (Folic Acid Antagonists); 0 (Pyrimidines); 0
(Sulfonamides); 5355-16-8 (diaveridine); 58-14-0 (Pyrimethamine);
6981-18-6 (ormetoprim); 738-70-5 (Trimethoprim)
Enzyme No.: EC 1.5.1.3 (Tetrahydrofolate Dehydrogenase); EC 2.1.1.45
(Thymidylate Synthase)

28/8/72 (Item 2 from file: 156)
DIALOG(R)File 156:(c) format only 2004 The Dialog Corporation. All rts.
reserv.

02050184 95069326 NLM Doc No: 7978638

Examination of the activities of 43 chemotherapeutic agents against Neospora caninum tachyzoites in cultured cells.

Jul 1994

Tags: Animal; Human; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiostats--pharmacology--PD; * Neospora --drug effects --DE; Antibiotics, Macrolide--pharmacology--PD; Antiprotozoal Agents --pharmacology--PD; Cattle; Cells, Cultured ; Dogs; Drug Evaluation, Preclinical--veterinary--VE; Fibroblasts; Skin; Sulfonamides--pharmacology --PD; Tetracyclines--pharmacology--PD

CAS Registry No.: 0 (Antibiotics, Macrolide); 0 (Antiprotozoal Agents) ; 0 (Coccidiostats); 0 (Sulfonamides); 0 (Tetracyclines)

28/8/73 (Item 3 from file: 156)

DIALOG(R)File 156:(c) format only 2004 The Dialog Corporation. All rts. reserv.

03984934 NLM Doc No: EMIC/103330 Sec. Source ID: EMIC/MUT/97000245; EMIC/103330

Demonstration of synergistic effects of sulfonamides and dihydrofolate reductase/thymidylate synthase inhibitors against Neospora caninum tachyzoites in cultured cells, and characterization of mutants resistant to pyrimethamine.

1996

CAS Registry No.: 72732-56-0 (PIRITREXIM); 58-14-0 (PYRIMETHAMINE); 70-25-7 (MNNG)

Identifiers: NEOSPORA CANINUM, NG-1; BACTERIA; FORESKIN FIBROBLASTS; GENE MUTATIONS; GENE MUTATIONS; I&C; FORWARD MUTATION-PYRIMETHAMINE R

28/8/74 (Item 1 from file: 159)

DIALOG(R)File 159:(c) format only 2002 Dialog Corporation. All rts. reserv.

02117782 95069326 PMID: 7978638

Examination of the activities of 43 chemotherapeutic agents against Neospora caninum tachyzoites in cultured cells.

Jul 1994

Tags: Animal; Human; Male; Support, Non-U.S. Gov't

Major Descriptors: Coccidiostats--pharmacology--PD; * Neospora --drug effects--DE

Minor Descriptors: Antibiotics, Macrolide--pharmacology--PD; Antiprotozoal Agents--pharmacology--PD; Cattle; Cells, Cultured ; Dogs; Drug Evaluation, Preclinical--veterinary--VE; Fibroblasts; Skin; Sulfonamides--pharmacology--PD; Tetracyclines--pharmacology--PD

CAS Registry No.: 0 (Antibiotics, Macrolide); 0 (Antiprotozoal Agents) ; 0 (Coccidiostats); 0 (Sulfonamides); 0 (Tetracyclines)

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06feb04 16:29:55 User228206 Session D2113.4

\$3.29 1.028 DialUnits File155

\$0.00 22 Type(s) in Format 8

\$0.00 22 Types

\$3.29 Estimated cost File155

\$5.77 1.031 DialUnits File5

\$0.00 16 Type(s) in Format 6

\$0.00 16 Types

\$5.77 Estimated cost File5

\$19.16 0.935 DialUnits File34

\$0.00 16 Type(s) in Format 8

\$0.00 16 Types

\$19.16 Estimated cost File34

\$0.83 0.202 DialUnits File35

\$0.83 Estimated cost File35

\$0.49 0.091 DialUnits File48

\$0.49 Estimated cost File48

\$0.93 0.247 DialUnits File65

\$0.93 Estimated cost File65

\$2.95 0.372 DialUnits File71

\$0.00 1 Type(s) in Format 6

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File 155:MEDLINE(R) 1966-2004/Feb W1

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*File 155: Medline is updating again (12-22-2003).

Please see HELP NEWS 154, for details.

File 203:AGRIS 1974-2004/Jan

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File 94:JICST-EPlus 1985-2004/Jan W4

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File 344:Chinese Patents Abs Aug 1985-2003/Nov

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File 156:ToxFile 1965-2004/Jan W4

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File 5:Biosis Previews(R) 1969-2004/Feb W1

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File 73:EMBASE 1974-2004/Feb W1

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File 399:CA SEARCH(R) 1967-2004/UD=14006

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File 143:Biol. & Agric. Index 1983-2004/Jan

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File 16:Gale Group PROMT(R) 1990-2004/Feb 06

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*File 16: Alert feature enhanced for multiple files, duplicate removal, customized scheduling. See HELP ALERT.

File 347:JAPIO Oct 1976-2003/Oct(Updated 040202)

(c) 2004 JPO & JAPIO

*File 347: JAPIO data problems with year 2000 records are now fixed.

Alerts have been run. See HELP NEWS 347 for details.

File 185:Zoological Record Online(R) 1978-2004/Feb

(c) 2004 BIOSIS

File 369:New Scientist 1994-2004/Feb W1

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4/9/1 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

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08557594 95245895 PMID: 7728629

Protozoal causes of reproductive failure in domestic ruminants.

Anderson M L; Barr B C; Conrad P A

California Veterinary Diagnostic Laboratory, Davis.

Veterinary clinics of North America. Food animal practice (UNITED STATES)

Nov 1994, 10 (3) p439-61, ISSN 0749-0720 Journal Code: 8511905

Document type: Journal Article; Review; Review, Tutorial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Protozoan parasites are a significant cause of abortion and infertility in domestic ruminants. Toxoplasma gondii, a widespread cause of abortion in sheep and goats, and Sarcocystis spp., which cause a common, frequently asymptomatic infection of domestic ruminants, both have a two-host life cycle. Carnivorous definitive hosts spread the infection through their feces and domestic ruminants are intermediate hosts. A similar, recently recognized protozoa, Neospora sp., has emerged as an important cause of reproductive disease, especially as an abortifacient in dairy cattle. Neospora is presumed to also have a two-host life cycle, although the

definitive host(s) has not been identified. The venereally transmitted *Tritrichomonas foetus* is an important cause of pregnancy loss in naturally bred cattle throughout the world. In the absence of effective methods for **vaccination** or treatment, control of these parasites is based on management procedures to reduce infection and transmission. (142 Refs.)

Tags: Animal; Female; Pregnancy

Descriptors: *Abortion, Veterinary--parasitology--PS; *Fetal Death--veterinary--VE; *Pregnancy Complications, Parasitic--veterinary--VE; *Protozoan Infections, Animal; *Ruminants--parasitology--PS; Abortion, Veterinary--physiopathology--PP; Cattle; Cattle Diseases--parasitology--PS; Cattle Diseases--physiopathology--PP; Coccidiosis--complications--CO; Coccidiosis--physiopathology--PP; Coccidiosis--veterinary--VE; Fetal Death--parasitology--PS; Fetal Death--physiopathology--PP; Goat Diseases--parasitology--PS; Goat Diseases--physiopathology--PP; Goats; Mastigophora Infections--complications--CO; Mastigophora Infections--physiopathology--PP; Mastigophora Infections--veterinary--VE; Neospora; Pregnancy Complications, Parasitic--chemically induced--CI; Pregnancy Complications, Parasitic--physiopathology--PP; Protozoan Infections--complications--CO; Protozoan Infections--physiopathology--PP; Sarcocystosis--complications--CO; Sarcocystosis--physiopathology--PP; Sarcocystosis--veterinary--VE; Sheep; Sheep Diseases--parasitology--PS; Sheep Diseases--physiopathology--PP; Toxoplasmosis, Animal--complications--CO; Toxoplasmosis, Animal--physiopathology--PP; *Tritrichomonas foetus*

Record Date Created: 19950601

Record Date Completed: 19950601

4/9/2 (Item 1 from file: 203)

DIALOG(R)File 203:AGRIS

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02103248 AGRIS No: 97-037731

Diagnosis and control of coccidial infections

Ugglå, A.

Research and development for animal health

Publisher: Statens Veterinärmedicinska Anstalt, Uppsala (Sweden), 1996

, p. 29-31

ISBN: 91-972469-0-5

Notes: 12 ref.

Language: English

Place of Publication: Sweden

Document Type: Analytic, Monograph,

Journal Announcement: 2303 Record input by Sweden

Descriptors in English: *CHICKENS; *COCCIDIOSIS; *TOXOPLASMOSIS; *ZOOSES; *NEOSPOA CANINUM; *CATTLE; *DIAGNOSIS; *DISEASE CONTROL; *VACCINES; BIRDS; BOVIDAE; BOVINAE; COCCIDIA; DOMESTIC ANIMALS; DOMESTICATED BIRDS; GALLIFORMES; LIVESTOCK; MAMMALS; NEOSPOA; PARASITOSE; POULTRY; PROTOZOA; PROTOZOAL INFECTIONS; RUMINANTS; SPOROZOA; USEFUL ANIMALS; ZOOSES;

Descriptors in Spanish: *POLLO; *COCCIDIOSIS; *TOXOPLASMOSIS; *ZONOSIS; *NEOSPOA CANINUM; *GANADO BOVINO; *DIAGNOSTICO; *CONTROL DE ENFERMEDADES; *VACUNA; ANIMALES DOMESTICOS; ANIMALES UTILES; AVES DE CORRAL; AVES DOMESTICAS; BOVIDAE; BOVINAE; COCCIDIA; ENFERMEDADES PARASITARIAS; GALLIFORMES; GANADO; INFECCIONES POR PROTOZOOS; MAMIFEROS; NEOSPOA; PAJAROS; PROTOZOA; RUMIANTE; SPOROZOA; ZONOSIS;

Descriptors in French: *POULET; *COCCIDIOSE; *TOXOPLASMOSE; *ZONOSE; *NEOSPOA CANINUM; *BOVIN; *DIAGNOSTIC; *CONTROLE DE MALADIES; *VACCIN; ANIMAL DOMESTIQUE; BETAIL; BOVIDAE; BOVINAE; COCCIDIA; GALLIFORMES; MAMMIFERE; NEOSPOA; OISEAU; OISEAU DOMESTIQUE; PARASITOSE; PROTOZOA; PROTOZOSE; RUMINANT; SPOROZOA; VOLAILLE; ZONOSE;
Section Headings: L72 (ANIMAL PRODUCTION -- Pests of animals)

4/9/3 (Item 1 from file: 50)

DIALOG(R)File 50:CAB Abstracts

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03088294 CAB Accession Number: 950807358

Coccidiosis research - COST effective.

Shirley, M. W.

Institute for Animal Health, Compton Laboratory, Compton, Newbury RG16 0NN, UK.

Parasitology Today vol. 11 (3): p.89-91

Publication Year: 1995 --

Language: English

Document Type: Conference paper; Journal article

A short account is given of the 1994 COST (European Co-operation in the field of Scientific and Technical Research) conference on coccidiosis held in Uppsala, Sweden, 29 September to 1 October, which marked the end of a 5-year programme on basic research on coccidiosis of poultry and farm animals, and development of **vaccines** using biotechnological procedures, and heralded the beginning of a new programme (1994 to 1999) which will focus more closely on the derivation of recombinant **vaccines** against the major coccidial parasites belonging to the genera *Eimeria*, *Cryptosporidium*, *Toxoplasma* and **Neospora**.

DESCRIPTORS: coccidiosis; research; parasites

ORGANISM DESCRIPTORS: protozoa

GEOGRAPHIC NAMES: Europe

BROADER TERMS: invertebrates; animals

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820)

4/9/4 (Item 2 from file: 50)

DIALOG(R) File 50:CAB Abstracts

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02882863 CAB Accession Number: 940804709

Report from a Nordic seminar : coccidial infections of ruminants - diagnosis, epidemiology and control.

Department of Parasitology, National Veterinary Institute and Swedish University of Agricultural Sciences, PO Box 7073, S-750 07 Uppsala, Sweden.

Bulletin of the Scandinavian Society for Parasitology vol. 3 (1): p.37-47

Publication Year: 1993

ISSN: 0803-4907

Editors: Ugglä, A. --

Language: English

Document Type: Conference paper; Journal article

This report contains the abstracts of the following papers presented at the seminar "Coccidial infections of ruminants - diagnosis, epidemiology and control" held in Uppsala, Sweden, 16-18 November 1992: the *Coccidia* - classification and identification (A. Ugglä); small subunit rRNA as a target molecule for diagnostic and phylogenetic studies of cyst-forming coccidia (O. Joakim & M. Holmdahl); **Neospora** caninum - an important pathogen of ruminants (J. P. Dubey); cryptosporidiosis in ruminants - epidemiological, clinical and diagnostic aspects (S. A. Henriksen); *Eimeria* coccidiosis in sheep in Norway: a historical review (O. Helle); *Eimeria alabamensis* coccidiosis in cattle in Sweden (C. Svensson); studies on an experimental *Toxoplasma* ISCOM **vaccine** (A. Lunden); **vaccines** against avian coccidiosis and ovine toxoplasmosis (H. J. Bos). 11 ref.

DESCRIPTORS: vaccines; toxoplasmosis; coccidiosis; epidemiology;

diagnosis; control; molecular genetics; livestock; phylogeny; taxonomy; parasites

ORGANISM DESCRIPTORS: coccidia; Apicomplexa; ruminants; Artiodactyla;

Bovidae; Eimeriidae; Sarcocystidae; protozoa

BROADER TERMS: domestic animals; vertebrates; Chordata; animals;

Apicomplexa; Protozoa; invertebrates; Artiodactyla; mammals; ungulates; ruminants; Eucoccidiorida

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals

(LL820); Parasites, Vectors, Pathogens & Biogenic Diseases of Humans

(VV200)

4/9/5 (Item 3 from file: 50)
DIALOG(R) File 50:CAB Abstracts
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02864759 CAB Accession Number: 942208698

Annual report of the Health Service for Animals in North Netherlands for 1993.

Original Title: Jaarverslag 1993.
Benedictus, G. (Director)
45 pp.
Publication Year: 1994
Publisher: Stichting Gezondheidsdienst voor Dieren in Noord-Nederland,
PO Box 361 -- 9200 AJ Drachten, Netherlands
Language: Dutch
Document Type: Annual report

Antibody to *Leptospira interrogans* serovar hardjo was present in 12% of milk samples from 3800 herds (compared with 16% in 1992 and 25% in 1991). Certification of herds free from hardjo commenced in December 1993. 325 herds were vaccinated against bovine paratuberculosis, and a testing scheme towards eradication commenced in 10 herds. *Neospora* was responsible for 182 of 1152 abortions in cows, with *Salmonella dublin* responsible for 182, and 'no obvious cause' in 541 (47%). Infectious bovine rhinotracheitis antibody was present in 13-18% of cattle. Nutritional problems were investigated in 135 herds. New regulations about antimicrobial substances in milk came into force in April 1993. Treatment of bovine endometritis by intra-uterine infusion of 2 g oxytetracycline or 100 ml of Lugol's iodine solution did not breach these regulations. The Netherlands was free from scrapie, but a voluntary surveillance scheme commenced in 240 of the 6524 sheep flocks in North Netherlands. An abattoir survey for Aujeszky's disease showed that 22% of 341 blood samples were positive (compared with 36.2% of 3832 samples from the whole of the Netherlands). Subsidised vaccination became compulsory in September 1993. Semen from 744 stallions was tested for fertility. Equine rhinopneumonitis virus was responsible for abortion in 14 of 57 foals. Contagious equine endometritis was absent.

DESCRIPTORS: veterinary services; cattle diseases; swine diseases; sheep diseases

ORGANISM DESCRIPTORS: cattle; pigs; sheep

GEOGRAPHIC NAMES: Netherlands

BROADER TERMS: Bos; Bovidae; ruminants; Artiodactyla; mammals; vertebrates; Chordata; animals; ungulates; Sus; Suidae; Suiformes; Ovis; Western Europe; Europe; Benelux; Developed Countries; European Communities; OECD Countries

CABICODES: Animal Health & Hygiene (General) (LL800); Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820); Agriculture (General) (AA000)

4/9/6 (Item 4 from file: 50)
DIALOG(R) File 50:CAB Abstracts
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02814038 CAB Accession Number: 942202217

Helminthoses and protozoal infections of dogs and cats.

Original Title: Helminthoses et protozooses des carnivores domestiques.

Additional Authors: Bourdeau, P.

Recueil de Medecine Veterinaire vol. 169 (5/6): p.331-511

Publication Year: 1993 --

Language: French Summary Language: english; spanish

Document Type: Journal article

This issue of the journal is devoted to helminthoses and protozoal infections of dogs and cats. There is a forward by P. Bourdeau, giving a general account of the situation, followed by 5 papers on helminthoses of the digestive system (*Toxocara*, *Ancylostoma*, *Taenia*, *Spiruroidea* (*Spirura*, *Spirocerca*, *Gnathostoma*, *Physaloptera*), *Trichuris*); 2 on protozoal infections of the digestive system (*Coccidia*, *Giardia*); 4 on parasitoses

of the cardiorespiratory system (Angiostrongylus, Aelurostrongylus, helminths in general, Dirofilaria); 6 on systematic parasitoses and those affecting the nervous system (Leishmania, Babesia, Hepatozoon, Toxoplasma, Neospora, Encephalitozoon); a paper on parasitic diseases that may be acquired while animals are travelling abroad with their owners; and 2 papers on disease control (covering anthelmintics, antiprotozoal agents, vaccines). many ref.

DESCRIPTORS: anthelmintics; antiprotozoal agents; dog diseases; cat diseases; parasitoses; helminthoses; reviews; protozoal infections; domestic animals; helminths; parasites

ORGANISM DESCRIPTORS: cats; dogs; carnivores; Canidae; Felidae; protozoa

BROADER TERMS: vertebrates; Chordata; animals; invertebrates; Felis; Felidae; Fissipeda; carnivores; mammals; Canis; Canidae

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820); Animal Health & Hygiene (General) (LL800); Pets & Companion Animals (LL070); Control by Chemicals & Drugs (HH400); Medical & Veterinary Helminthology Records (Discontinued) (TT100); Medical & Veterinary Protozoology Records (Discontinued) (TT200)

4/9/7 (Item 1 from file: 73)

DIALOG(R)File 73:EMBASE

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06112546 EMBASE No: 1995143243

Cyst-forming coccidian parasites: Toxoplasma, Neospora, Sarcocystis

ZYSTENBILDENDE KOKZIDIEN: TOXOPLASMA, NEOSPORA, SARCOCYSTIS

Gottstein B.

Inst. f. Parasitol./Veterinarmed., Medizinische Fakultät, Universität Bern, Langgassstrasse 120, CH-3012 Bern Switzerland

Schweizerische Medizinische Wochenschrift (SCHWEIZ. MED. WOCHENSCHR.) (Switzerland) 1995, 125/18 (890-898)

CODEN: SMWOA ISSN: 0036-7672

DOCUMENT TYPE: Journal; Conference Paper

LANGUAGE: GERMAN SUMMARY LANGUAGE: GERMAN; ENGLISH

The most important cyst-forming coccidian parasites in human and veterinary medicine belong to the genera of Toxoplasma, Neospora and Sarcocystis. Toxoplasma gondii shows its clinical relevance in congenital infections and opportunistic infections in immunodeficient patients. In veterinary medicine the parasite is predominantly the cause of important economic loss in livestock production. Neospora causes diseases resembling toxoplasmosis; neosporosis is one of the most important causes of bovine abortion in the US. Neospora caninum leads to myositis and paralysis in dogs. The potential implication of Neospora in toxoplasmosis-like diseases in humans is not yet known. Sarcocystis is usually a relatively harmless intestinal parasite in humans. Recent data from tropical areas suggest that man can also become an intermediate host for certain Sarcocystis species, which potentially represents a source of opportunistic infection and disease in areas with increasing HIV prevalence. In veterinary medicine, Sarcocystis causes muscle diseases and also abortion or myeloencephalitis with lethal outcome in certain animal species. Molecular epidemiological investigations have resulted in a new understanding of biological and population-genetic mechanisms relevant to the disease. Recently developed molecular techniques, such as transfection in protozoan parasites, are presently used not only to elucidate molecular-pathogenetic events in the course of disease, but also to prepare potential new immuno-therapeutic tools for future vaccination against infection or disease.

DRUG DESCRIPTORS:

unclassified drug

MEDICAL DESCRIPTORS:

*coccidiosis--prevention--pc; *coccidiosis--drug therapy--dt; *coccidiosis--epidemiology--ep; *coccidiosis--etiology--et; *sarcocystis; *toxoplasma gondii; *zoonosis

conference paper; disease course; human; immune deficiency; molecular biology; neospora caninum; vaccination

DRUG TERMS (UNCONTROLLED): toxoplasma vaccine--drug therapy--dt; toxoplasma

vaccine--drug development--dv

SECTION HEADINGS:

004 Microbiology: Bacteriology, Mycology, Parasitology and Virology

017 Public Health, Social Medical and Epidemiology

037 Drug Literature Index

?t s4/3,kwic/8

>>>KWIC option is not available in file(s): 399

4/3,KWIC/8 (Item 1 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

(c) 2004 American Chemical Society. All rts. reserv.

121299107 CA: 121(25)299107d PATENT

Defective Sindbis virus expression vectors for manufacture of Toxoplasma gondii p30 antigens for vaccines

INVENTOR(AUTHOR): Grieve, Robert B.; Xiong, Cheng

LOCATION: USA

ASSIGNEE: Paravax, Inc.

PATENT: PCT International ; WO 9417813 A1 DATE: 940818

APPLICATION: WO 94US1398 (940208) *US 15414 (930208)

PAGES: 128 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: A61K-035/76A;
A61K-039/00B; A61K-039/002B; A61K-039/02B; A61K-039/12B; C07K-015/04B;
C12N-005/10B; C12N-007/01B; C12N-007/04B; C12N-015/30B; C12N-015/63B

DESIGNATED COUNTRIES: AT; AU; BB; BG; BR; BY; CA; CH; CN; CZ; DE; DK; ES;
FI; GB; HU; JP; KP; KR; KZ; LK; LU; LV; MG; MN; MW; NL; NO; NZ; PL; PT; RO;
RU; SD; SE; SK; UA; US; UZ; VN DESIGNATED REGIONAL: AT; BE; CH; DE; DK; ES
; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; BF; BJ; CF; CG; CI; CM; GA; GN;
ML; MR; NE; SN; TD; TG

?logoff hold

09741989 21543874 PMID: 11688887

Immune responses in pregnant cattle and bovine fetuses following experimental infection with *Neospora caninum*.

Andrianarivo A G ; Barr B C; Anderson M L; Rowe J D; Packham A E; Sverlow K W; Conrad P A

Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine, University of California, Davis 95616, USA.

Parasitology research (Germany) Oct 2001, 87 (10) p817-25, ISSN 0932-0113 Journal Code: 8703571

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Humoral and cell-mediated immune (CMI) responses [i.e. proliferative responses and gamma interferon (IFN-gamma) production], were elicited in five cows infected between 159 and 169 days of gestation by a combined intravenous-intramuscular inoculation of *Neospora caninum* tachyzoites. Analysis of antigen-specific immunoglobulin (IgG) subclasses revealed a predominant IgG2 response in two cows, a mixed IgG1-IgG2 response in two other cows and a predominant IgG1 response in one cow. No correlation was found between IgG2 titers and IFN-gamma levels. CD4-T cells were responsible for the CMI responses in peripheral blood mononuclear cells from three infected cows. All five fetuses removed from infected dams at week 9 post-infection (219-231 days of gestation) mounted strong *Neospora*-specific humoral responses and had a predominant IgG1 response, regardless of their ability to produce IFN-gamma. However, CMI responses were highly variable between fetuses. These data indicate the complexity of the immune mechanisms associated with *Neospora* infection in both the dams and their fetuses.

Tags: Animal; Female; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Cattle Diseases--immunology--IM; *Coccidiosis--immunology--IM; *Coccidiosis--veterinary--VE; *Fetus--immunology--IM; * *Neospora* --immunology--IM; *Pregnancy Complications, Parasitic--veterinary--VE; Antibodies, Protozoan--blood--BL; Cattle; Cattle Diseases--parasitology--PS; Coccidiosis--parasitology--PS; Immunity, Cellular; Immunoglobulin G --blood--BL; Pregnancy Complications, Parasitic--immunology--IM; Pregnancy Complications, Parasitic--parasitology--PS

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Immunoglobulin G)

Record Date Created: 20011101

Record Date Completed: 20020423

S6 264 S4 AND (VACCIN? OR IMMUNI? OR INJECT? OR ADMINIS?)
 S7 1 (S5 OR S6) AND ADJUV?
 S8 79 S5 AND S6
 S9 4228 NEOSPORA?
 S10 0 S8/1997:2004
 S11 0 S10 AND CANINUM?
 S12 0 S11 AND AU= (BRAKE? OR BLAGBURN? OR LINDSAY?)
 S13 3239 S9/1997:2004
 S14 2927 S13 AND CANINUM?
 S15 23271 AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
 S16 224 S14 AND S15
 S17 78 RD (unique items)
 S18 989 S9 NOT S13
 S19 171 S18 AND S15
 S20 0 S19/1997:2004
 S21 72184 NC OR (NC (2N) 1) OR NC1 OR NC-1
 S22 8236484 PARENT? OR SUBCULT? OR CULTUR? OR MONKEY? OR KIDNEY? OR MA-
 RC?
 S23 13186 S21 AND S22
 S24 0 S19 AND S21 AND S22
 S25 17 S19 AND S21
 S26 57 S19 AND S22
 S27 0 S25 AND S26
 S28 74 S25 OR S26
 ?t s28/9/69 53 47 45 40

28/9/69 (Item 4 from file: 144)
 DIALOG(R)File 144:Pascal
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11260853 PASCAL No.: 94-0079674
Neosporosis
 DUBEY J P; LINDSAY D S
 U.S. dep. agriculture, Livestock poultry sci. inst., zoonotic diseases
 lab., Beltsville MD 20705-2350, USA
 Journal: Parasitology today : (Personal ed.), 1993, 9 (12) 452-458
 ISSN: 0169-4707 CODEN: PATOE2 Availability: INIST-20872;
 354000025969150020
 No. of Refs.: 51 ref.
 Document Type: P (Serial) ; A (Analytic)
 Country of Publication: Netherlands
 Language: English

English Descriptors: Host parasite relation; Molecular structure;
 Microorganism **culture** ; Experimental disease; Characterization;
 Diagnosis; Review; Life cycle; Livestock; Dog; Abortion
 Broad Descriptors: Aufbereiten; Protozoal disease; Infection; Treatment;
 Protozoa; Veterinary medicine; Fissipedia; Carnivora; Mammalia;
 Vertebrata; Pregnancy disorders; Protozoose; Infection; Traitement;
 Protozoa; Medecine veterinaire; Fissipedia; Carnivora; Mammalia;
 Vertebrata; Gestation pathologie; Protozoosis; Infeccion; Tratamiento;
 Protozoa; Medicina veterinaria; Fissipedia; Carnivora; Mammalia;
 Vertebrata; Gestacion patologia

French Descriptors: Relation hote parasite; Structure moleculaire; **Culture**
 microorganisme; Pathologie experimentale; Caracterisation; Diagnostic;
 Article synthese; Cycle developpement; Betail; Chien; Avortement;
Neospora caninum

Classification Codes: 002B05E02C

28/9/53 (Item 15 from file: 34)
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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00829650 Genuine Article#: EZ739 Number of References: 17
Title: ULTRASTRUCTURE OF DEVELOPING ISOSPORA-SUIS IN CULTURED -CELLS

Author(s): LINDSAY DS ; BLAGBURN BL ; TOIVIOKINNUCAN M
Corporate Source: AUBURN UNIV, COLL VET MED, DEPT PATHOBIOL, 166 GREENE
HALL/AUBURN//AL/36849; AUBURN UNIV, ALABAMA AGR EXPT STN, DEPT ANIM
HLTHRES/AUBURN//AL/36849
Journal: AMERICAN JOURNAL OF VETERINARY RESEARCH, 1991, V52, N3, P471-473
Language: ENGLISH Document Type: ARTICLE
Geographic Location: USA
Subfile: SciSearch; CC AGRI--Current Contents, Agriculture, Biology &
Environmental Sciences
Journal Subject Category: VETERINARY MEDICINE

Abstract: The ultrastructure of *Isospora suis* sporozoites, type-1 meronts, and type-1 merozoites was examined, using transmission electron microscopy of infected **cultured** cells. The ultrastructure of sporozoites and type-1 merozoites was similar. Each possessed trimembranous pellicles, subpellicular microtubules, a conoid, anterior and posterior polar rings, rhoptries, micronemes, a single vesicular nucleus, tubular mitochondria, Golgi complexes, ribosomes, endoplasmic reticula, inactive micropores, amylopectin bodies, lipid bodies, dense bodies, and crystalloid bodies. Merozoites were produced by endodyogeny. Ultrastructural events associated with merozoite production by type-1 meronts are described.

Identifiers--KeyWords Plus: NEOSPORA -CANINUM; SWINE; ENDODYOGENY; BIESTER; PIGS

Cited References:

FERGUSON DJP, 1980, V63, P289, Z PARASITENKD
LINDSAY DS, 1990, P77, COCCIDIA MAN ANIMALS
LINDSAY DS, 1980, V66, P771, J PARASITOL
LINDSAY DS, 1983, V69, P783, J PARASITOL
LINDSAY DS, 1989, V75, P163, J PARASITOL
LINDSAY DS, 1984, V31, P152, J PROTOZOOL
LINDSAY DS, 1989, V83, P443, VET MED
LINDSAY DS, 1987, V24, P301, VET PARASITOL
LINDSAY DS, 1983, V69, P27, Z PARASITENKD
MATUSCHKA FR, 1982, V67, P27, Z PARASITENKD
SHEFFIELD HG, 1968, V54, P209, J PARASITOL
SHEFFIELD HG, 1976, V43, P217, PROC HELMINTHOL S W
SHEFFIELD HG, 1970, V167, P892, SCIENCE
SPEER CA, 1989, V36, P488, J PROTOZOOL
SPEER CA, 1989, V36, P458, J PROTOZOOL
STUART BP, 1980, V17, P84, VET PATHOL
WEISS RC, 1988, V49, P1329, AM J VET RES

28/9/47 (Item 9 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

02362397 Genuine Article#: KW476 Number of References: 24

Title: ULTRASTRUCTURAL DETERMINATION OF CYSTOGENESIS BY VARIOUS
TOXOPLASMA-GONDII ISOLATES IN CELL- CULTURE

Author(s): LINDSAY DS ; TOIVIOKINNUCAN MA; BLAGBURN BL
Corporate Source: AUBURN UNIV, COLL VET MED, DEPT PATHOBIOL/AUBURN//AL/36849
Journal: JOURNAL OF PARASITOLOGY, 1993, V79, N2 (APR), P289-292
ISSN: 0022-3395

Language: ENGLISH Document Type: NOTE
Geographic Location: USA

Subfile: SciSearch; CC LIFE--Current Contents, Life Sciences; CC AGRI--
Current Contents, Agriculture, Biology & Environmental Sciences
Journal Subject Category: PARASITOLOGY

Abstract: The tissue cyst stage of *Toxoplasma gondii* is important in relapsing disease seen in toxoplasmic encephalitis and retinochoroiditis. An in vitro **culture** system to examine the developmental biology of the tissue cyst stage would greatly aid in our understanding of this stage of the parasite's life cycle. We used transmission electron microscopy (TEM) and acid-pepsin digestion of infected cell **cultures** to determine the capability of 21 isolates of *T. gondii* to produce tissue cysts in cell **cultures**. All 21 of the isolates had acid-pepsin-resistant stages present, and tissue cysts could be demonstrated in 19 using TEM. The present study demonstrates

09539880 21320484 PMID: 11427432

In the absence of endogenous gamma interferon, mice acutely infected with *Neospora caninum* succumb to a lethal immune response characterized by inactivation of peritoneal macrophages.

Nishikawa Y ; Tragoolpua K; Inoue N; Makala L; Nagasawa H; Otsuka H; Mikami T

National Research Center for Protozoan Diseases, Obihiro University, Obihiro, Hokkaido 080-8555, Japan.

Clinical and diagnostic laboratory immunology (United States) Jul 2001, 8 (4) p811-6, ISSN 1071-412X Journal Code: 9421292

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Following infection with *Neospora caninum*, BALB/c mice were shown to be resistant to an acute infection but developed a latent chronic infection. However, BALB/c background gamma interferon (IFN-gamma)-deficient mice were sensitive to the acute infection. Since the immune response in IFN-gamma-deficient mice is scanty known, we examined the function of macrophages, major histocompatibility complex (MHC) class II expression, T-cell responses, and serum cytokine levels in the mice. All IFN-gamma-deficient mice died within 9 days of infection with *N. caninum*, whereas those treated with exogenous IFN-gamma lived longer. Although *N. caninum* invaded various organs in both types of mice at the early stage of infection, the parasite was not detected in the brains of resistant hosts until 21 days postinfection (dpi). Peritoneal macrophages from IFN-gamma-deficient mice were activated by exogenous IFN-gamma associated with inhibition of parasite growth and nitric oxide production as were those from BALB/c mice. IFN-gamma-deficient mice failed to increase MHC class II expression on macrophages. Moreover, BALB/c mice induced T-cell proliferation while IFN-gamma-deficient mice did not. However, in vivo treatment with exogenous IFN-gamma induced up-regulated MHC class II expression in IFN-gamma-deficient mice. BALB/c mice treated with an antibody to CD4 showed an increase in morbidity and mortality after parasite infection. In serum, significant levels of IFN-gamma and interleukin-4 (IL-4) were detected in resistant hosts, whereas IL-10 was detected in IFN-gamma-deficient mice. The levels of IL-12 in IFN-gamma-deficient mice were higher than those in BALB/c mice at 7 dpi. The present study indicates that early IFN-gamma production has a crucial role in the activation of peritoneal macrophages for the induction of protective immune responses against *N. caninum*.

Tags: Animal; Female; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--immunology--IM; *Interferon Type II--immunology--IM; *Macrophage Activation--immunology--IM; *Macrophages, Peritoneal--immunology--IM; * *Neospora* --immunology--IM; Acute Disease; Antibodies,

Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

A Holstein dairy farm suffered an abortion outbreak due to neosporosis. Abortion losses were > 18%. Cows with the highest **Neospora** antibody titers were at the greatest risk of aborting. Mummified fetuses were found after the 43rd day of the outbreak. The epidemic curve was suggestive of a point source exposure, which is consistent with the hypothesis that **Neospora** can be spread by a definitive host.

Tags: Animal; Female; Pregnancy

Descriptors: Abortion, Veterinary--parasitology--PS; *Cattle Diseases; *Coccidiosis--veterinary--VE; * **Neospora** ; *Pregnancy Complications, Parasitic--veterinary--VE; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--blood--BL; California--epidemiology--EP; Cattle; Coccidiosis--embryology--EM; Coccidiosis--epidemiology--EP; Cohort Studies ; Disease Outbreaks; Fetus--parasitology--PS; Incidence; Pregnancy Complications, Parasitic--epidemiology--EP

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970113

Record Date Completed: 19970113

18/9/20 (Item 20 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10619977 96437612 PMID: 8840259

Grant funds research into new parasite disease in dogs.

Journal of small animal practice (ENGLAND) Jul 1996, 37 (7) p352-3,
ISSN 0022-4510 Journal Code: 0165053

Document type: News

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal

Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--parasitology--PS ; * **Neospora** ; Dogs; Research Support

Record Date Created: 19961211

Record Date Completed: 19961211

18/9/21 (Item 21 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10612019 96429628 PMID: 8832729

Identification of a major surface protein on Neospora caninum tachyzoites.

Hemphill A; Gottstein B
Institute of Parasitology, University of Berne, Switzerland.
hemphill@ipa.unibe.ch

Parasitology research (GERMANY) 1996, 82 (6) p497-504, ISSN
0932-0113 Journal Code: 8703571

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum is a recently identified coccidian parasite that is closely related to *Toxoplasma gondii*. Molecules associated with the surface of *N. caninum* tachyzoites are likely to be involved in the process of adhesion and invasion of host cells. They probably also participate in the interaction of the parasite with the immune system, and they could play an important role in the pathogenesis of the parasite. To identify such surface molecules, we performed subcellular fractionation studies of isolated *N. caninum* tachyzoites. Employing the nonionic detergent Triton-X-114, we prepared a membrane fraction. Immunoblot analysis of this fraction using polyclonal antisera directed against tachyzoites of *N.*

caninum and T. gondii resulted in the identification of a protein of approximately 43 kDa (Nc-p43). This molecule was present in two isolates of **Neospora** (Nc-1 and Liverpool) but was absent in Toxoplasma (RH-strain) tachyzoites. Further immunofluorescence and immunogold transmission electron microscopy (TEM) studies using affinity-purified anti-Nc-p43 antibodies demonstrated the presence of this molecule on the surface of N. caninum tachyzoites.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: Antigens, Protozoan--immunology--IM; *Antigens, Surface--immunology--IM; * **Neospora** --immunology--IM; *Protozoan Proteins--immunology--IM; Antibodies, Protozoan--immunology--IM; Cercopithecus aethiops; Rabbits; Subcellular Fractions; Toxoplasma--immunology--IM; Vero Cells

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan); 0 (Antigens, Surface); 0 (Nc-p43 protein); 0 (Protozoan Proteins)

Record Date Created: 19970116

Record Date Completed: 19970116

18/9/22 (Item 22 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10597319 96414865 PMID: 8817866

In vitro isolation of a bovine Neospora in Japan.

Yamane I; Kokuho T; Shimura K; Eto M; Haritani M; Ouchi Y; Sverlow K W; Conrad P A

Veterinary record (ENGLAND) Jun 29 1996, 138 (26) p652, ISSN 0042-4900 Journal Code: 0031164

Document type: Letter

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal; Female

Descriptors: Cattle Diseases--microbiology--MI; *Coccidiosis--veterinary--VE; * **Neospora** --isolation and purification--IP; Cattle; Japan

Record Date Created: 19961204

Record Date Completed: 19961204

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06feb04 16:32:03 User228206 Session D2113.5

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\$4.62 22 Type(s) in Format 9

\$4.62 22 Types

\$5.58 Estimated cost File155

\$0.04 0.007 DialUnits File5

\$0.04 Estimated cost File5

\$0.15 0.007 DialUnits File34

\$0.15 Estimated cost File34

\$0.03 0.007 DialUnits File35

\$0.03 Estimated cost File35

\$0.04 0.007 DialUnits File48

\$0.04 Estimated cost File48

\$0.03 0.007 DialUnits File65

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\$0.06 0.007 DialUnits File71

\$0.06 Estimated cost File71

\$0.07 0.007 DialUnits File73

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\$0.03 Estimated cost File91

\$0.03 0.007 DialUnits File94

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\$0.02 0.007 DialUnits File98

\$0.02 Estimated cost File98

\$0.04 0.007 DialUnits File135

\$0.04 Estimated cost File135

\$0.03 0.007 DialUnits File144

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 \$0.03 0.007 DialUnits File444
 \$0.03 Estimated cost File444
 \$0.05 0.007 DialUnits File467
 \$0.05 Estimated cost File467
 OneSearch, 26 files, 0.480 DialUnits FileOS
 \$0.24 TELNET
 \$7.02 Estimated cost this search
 \$7.02 Estimated total session cost 0.480 DialUnits

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Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
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***** HHHHHHHH SSSSSSSS?

Status: Signing onto Dialog

ENTER PASSWORD:

***** HHHHHHHH SSSSSSSS? *****

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Status: Connected

Dialog level 03.07.00D

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File 155:MEDLINE(R) 1966-2004/Feb W1

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File 5:Biosis Previews(R) 1969-2004/Feb W1

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File 34:SciSearch(R) Cited Ref Sci 1990-2004/Feb W1

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*File 34: New prices as of 1/1/2004 per Information Provider request. See HELP RATES 34.

File 35:Dissertation Abs Online 1861-2004/Jan

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 File 91:MANTIS(TM) 1880-2003/Feb
 2001 (c) Action Potential
 File 94:JICST-EPlus 1985-2004/Jan W4
 (c) 2004 Japan Science and Tech Corp(JST)
 File 98:General Sci Abs/Full-Text 1984-2004/Jan
 (c) 2004 The HW Wilson Co.
 File 135:NewsRx Weekly Reports 1995-2004/Feb W1
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 File 144:Pascal 1973-2004/Jan W4
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 File 149:TGG Health&Wellness DB(SM) 1976-2004/Jan W4
 (c) 2004 The Gale Group
 File 156:ToxFile 1965-2004/Jan W4
 (c) format only 2004 The Dialog Corporation
 File 159:Cancerlit 1975-2002/Oct
 (c) format only 2002 Dialog Corporation
 *File 159: Cancerlit ceases updating with immediate effect. Please see HELP NEWS.
 File 162:Global Health 1983-2004/Dec
 (c) 2004 CAB International
 File 164:Allied & Complementary Medicine 1984-2004/Feb
 (c) 2004 BLHCIS
 File 172:EMBASE Alert 2004/Feb W1
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 File 266:FEDRIP 2004/Dec
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 File 370:Science 1996-1999/Jul W3
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 *File 370: This file is closed (no updates). Use File 47 for more current information.
 File 399:CA SEARCH(R) 1967-2004/UD=14006
 (c) 2004 American Chemical Society
 *File 399: Use is subject to the terms of your user/customer agreement. Alert feature enhanced for multiple files, etc. See HELP ALERT.
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
 (c) 1998 Inst for Sci Info
 *File 434: New prices as of 1/1/2004 per Information Provider request. See HELP RATES434.
 File 444:New England Journal of Med. 1985-2004/Feb W2
 (c) 2004 Mass. Med. Soc.
 File 467:ExtraMED(tm) 2000/Dec
 (c) 2001 Informania Ltd.
 *File 467: For information about updating status please see Help News467.

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Set	Items	Description
S1	5034	NEOSPOR?
S2	3489	S1/1997:2004
S3	1545	S1 NOT S2
S4	899	RD (unique items)
S5	433	S4 AND (CULTUR? OR ATTENU? OR PASSAG? OR SUBCULTUR? OR MON-KEY? OR KIDNEY? OR (NC?) OR CANINUM)

10819880 97109766 PMID: 8952023

Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S; Trees A J; Stobart R H

University of Wyoming, College of Agriculture, Department of Veterinary Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,
ISSN 0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six groups of six pregnant ewes each were inoculated with 170,000 or 1,700,000 tachyzoites of *Neospora* caninum on gestation day 65, 90, or 120. All ewes seroconverted, and none showed signs of illness other than abortion. Regardless of the inoculum dose, all ewes inoculated on gestation day 65 aborted; ewes inoculated on gestation day 90 aborted, gave birth to weak lambs, or gave birth to clinically normal lambs; and all ewes inoculated on gestation day 120 gave birth to clinically normal lambs. Using an immunohistological procedure that stains bradyzoites, we observed protozoal cysts in brains of 11 of 29 (38%) aborted fetuses, in one of four (25%) weak lambs, and in seven of 18 (39%) clinically normal lambs. Cysts were not observed in extraneural tissues from two clinically normal lambs that had cysts in the brain. No evidence of infection was observed in tissues of five ewes examined using an immunohistological procedure that stains *N. caninum* tachyzoites and bradyzoites. Multifocal nonsuppurative encephalitis was observed in 46 of 51 (90%) aborted, weak, or clinically normal lambs. Cerebral necrosis, dystrophic mineralization, and meningitis were also commonly identified in live and aborted lambs (even when severely autolyzed). Nonsuppurative, necrotizing placentitis was observed in 15 of 17 (88%) placentas. Nonsuppurative myositis was common in fetuses but not in live lambs. Inflammation occurred less frequently in liver and lung. Clinical and pathological features of neosporosis in sheep closely resemble those of bovine neosporosis and ovine toxoplasmosis. Although abortion caused by naturally occurring neosporosis in sheep has not been reported, diagnosticians should carefully distinguish between neosporosis and toxoplasmosis in cases of ovine protozoal abortion unless future investigations exclude the likelihood of naturally acquired neosporosis in sheep.

Tags: Animal; Comparative Study; Female; Human; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Animals, Newborn--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* --isolation and purification--IP; *Pregnancy Complications, Parasitic--veterinary--VE; *Sheep Diseases--pathology--PA; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--analysis--AN; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--etiology--ET; Coccidiosis--pathology--PA; Disease Models, Animal; Encephalitis--pathology--PA; Encephalitis--veterinary--VE; Immunohistochemistry--methods--MT; Incidence; Liver--pathology--PA; Lung--pathology--PA; Myositis--pathology--PA; Myositis--veterinary--VE; Necrosis; *Neospora* --immunology--IM; Pregnancy Complications, Parasitic--pathology--PA; Sheep; Sheep Diseases--etiology--ET; Toxoplasmosis, Animal--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970306

Record Date Completed: 19970306

18/9/2 (Item 2 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10810517 97100246 PMID: 8944807

Neosporosis as a cause of equine protozoal myeloencephalitis.

Marsh A E; Barr B C; Madigan J; Lakritz J; Nordhausen R; Conrad P A

Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine, University of California, Davis 95616-8745, USA.

Journal of the American Veterinary Medical Association (UNITED STATES)

Dec 1 1996, 209 (11) p1907-13, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neosporosis was diagnosed in an 11-year-old Quarter Horse gelding with clinical signs and diagnostic test results compatible with equine protozoal myeloencephalitis (EPM). Presumptive postmortem diagnosis of EPM attributable to Sarcocystis neurona infection is generally made on the basis of detecting an antibody titer to S neurona in the CSF or characteristic histologic lesions, even when parasites have not been specifically identified. Neosporosis was confirmed in the horse described here by use of immunohistochemical examination, in vitro culturing, and ultrastructural and molecular characterization of parasites from infected tissues. Antibody testing of serum and CSF samples indicated that Neospora-specific anti-bodies can react with S neurona proteins on western blot analysis. The confirmation that neosporosis in horses can mimic EPM emphasizes the need to broaden the etiologic definition of EPM beyond infections exclusively attributable to S neurona.

Tags: Animal; Case Report; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *Encephalomyelitis--veterinary--VE; *Horse Diseases--parasitology--PS; * Neospora --isolation and purification--IP; Antibodies, Protozoan--cerebrospinal fluid--CF; Antibodies, Protozoan--immunology--IM; Antigens, Protozoan--analysis--AN; Coccidiosis--parasitology--PS; Encephalomyelitis--parasitology--PS; Horses; Immunohistochemistry; Neospora --immunology--IM; Neospora --ultrastructure--UL; Spinal Cord--parasitology--PS; Spinal Cord--ultrastructure--UL

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan)

Record Date Created: 19970130

Record Date Completed: 19970130

18/9/3 (Item 3 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10795493 97084977 PMID: 8931299

Clinical aspects of 27 cases of neosporosis in dogs.

Barber J S; Trees A J

Department of Veterinary Parasitology, Liverpool School of Tropical Medicine.

Veterinary record (ENGLAND) Nov 2 1996, 139 (18) p439-43, ISSN 0042-4900 Journal Code: 0031164

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Twenty-seven cases of neosporosis in European dogs are described. The disease was confirmed by immunohistochemistry, electron microscopy, or a favourable response to treatment in the dogs with appropriate clinical signs, and by the presence of antibodies to Neospora caninum but not to Toxoplasma gondii. The affected dogs were two days to seven years old, and of 13 different breeds. Both sexes were affected and in most cases littermates remained normal. Twenty-one cases had an initial hindlimb paresis or ataxia, in which muscle atrophy was the most consistent clinical sign. Rigid hyperextension developed in approximately half of the cases. Anorexia and pyrexia were rare. Other clinical signs included forelimb ataxia, head tremors with tetraparesis and sudden collapse due to myocarditis. Titres of > or = 1:800 in the N caninum indirect fluorescent antibody test were detected in the 20 cases from which serum samples were taken. Such high titres are rare in healthy dogs and strongly suggest a diagnosis of neosporosis. Sixteen of the dogs received appropriate antiprotozoal treatment with clindamycin, potentiated sulphonamides and/or pyrimethamine; 10 made a full or functional recovery. Recovery was less likely in peracute cases with severe clinical signs, and when the treatment was delayed.

Tags: Animal; Female; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--diagnosis--DI;

*Dog Diseases--physiopathology--PP; * **Neospora** ; Anti-Infective Agents
 --therapeutic use--TU; Antibiotics--therapeutic use--TU; Antibodies,
 Protozoan--blood--BL; Antimetabolites--therapeutic use--TU; Ataxia
 --etiology--ET; Ataxia--physiopathology--PP; Ataxia--veterinary--VE;
 Clindamycin--therapeutic use--TU; Coccidiosis--diagnosis--DI; Coccidiosis
 --physiopathology--PP; Dog Diseases--drug therapy--DT; Dogs; Fluorescent
 Antibody Technique, Indirect--veterinary--VE; Immunohistochemistry;
 Microscopy, Electron--veterinary--VE; Muscle, Skeletal--physiology--PH;
 Myocarditis--etiology--ET; Myocarditis--physiopathology--PP; Myocarditis
 --veterinary--VE; **Neospora** --immunology--IM; **Neospora** --isolation and
 purification--IP; Paresis--etiology--ET; Paresis--physiopathology--PP;
 Paresis--veterinary--VE; Pyrimethamine--therapeutic use--TU; Sulfonamides
 --therapeutic use--TU; Treatment Outcome
 CAS Registry No.: 0 (Anti-Infective Agents); 0 (Antibiotics); 0
 (Antibodies, Protozoan); 0 (Antimetabolites); 0 (Sulfonamides);
 18323-44-9 (Clindamycin); 58-14-0 (Pyrimethamine)
 Record Date Created: 19970224
 Record Date Completed: 19970224

18/9/4 (Item 4 from file: 155)
 DIALOG(R) File 155:MEDLINE(R)
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10785477 97135740 PMID: 8981277

Distribution of Neospora caninum within the central nervous system and other tissues of six dogs with clinical neosporosis.

Barber J S; Payne-Johnson C E; Trees A J
 Department of Parasitology, Liverpool School of Tropical Medicine,
 University of Liverpool.

Journal of small animal practice (ENGLAND) Dec 1996, 37 (12) p568-74
 , ISSN 0022-4510 Journal Code: 0165053

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six cases of neosporosis in dogs were diagnosed on the basis of clinical signs, serology and immunohistochemistry. The brains and spinal cords, at several levels, and various other tissues were examined using anti-**Neospora** caninum serum by an immunoperoxidase technique. Parasite density varied markedly from case to case. Although found most consistently in the cerebrum, parasites were distributed throughout the central nervous system (CNS), both within the grey and white matter and within nerve roots. Clinical signs were not related to the position of parasites. Tissue cysts were found infrequently in all areas of the CNS, but not in other tissues. Parasite density was not related to the age of the dog or whether treatment had been given. However, with the exception of the only adult dog examined, more CNS parasites were found in dogs with a longer duration of illness and with higher antibody titres. Tachyzoites were present in skeletal muscles, in the muscularis of the oesophagus, in heart, lung and, less frequently, liver, and rarely in the adrenal gland, thyroid gland and uterus; no clinical signs were seen resulting from damage to these organs. Parasites were not observed in lymphoid tissue. In visceral organs, parasites were most widely distributed in peracute cases. For post mortem diagnosis of neosporosis, the CNS, particularly the cerebrum, is the optimum tissue to examine but parasites may also be found in many other tissues, especially in acute cases. Muscle biopsy of appropriate muscles (as suggested by the clinical signs) provides the possibility of a definitive premortem diagnosis.

Tags: Animal; Case Report; Female; Male; Support, Non-U.S. Gov't

Descriptors: Central Nervous System--parasitology--PS; *Coccidiosis
 --veterinary--VE; *Dog Diseases--pathology--PA; * **Neospora** --isolation and
 purification--IP; Antibodies, Protozoan--blood--BL; Autopsy--veterinary--VE
 ; Biopsy--veterinary--VE; Brain--parasitology--PS; Brain--pathology--PA;
 Central Nervous System--pathology--PA; Coccidiosis--diagnosis--DI;
 Coccidiosis--pathology--PA; Dog Diseases--diagnosis--DI; Dog Diseases
 --parasitology--PS; Dogs; Fluorescent Antibody Technique, Indirect
 --veterinary--VE; Immunohistochemistry; Muscle, Skeletal--parasitology--PS;

Muscle, Skeletal--pathology--PA; **Neospora** --immunology--IM; Spinal Cord
--parasitology--PS; Spinal Cord--pathology--PA
CAS Registry No.: 0 (Antibodies, Protozoan)
Record Date Created: 19970320
Record Date Completed: 19970320

18/9/5 (Item 5 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

10762007 97111959 PMID: 8953695
Stillbirth/perinatal weak calf syndrome: serological examination for evidence of Neospora caninum infection.
Graham D A; Smyth J A; McLaren I E; Ellis W A
Veterinary Sciences Division, Department of Agriculture for Northern Ireland, Stormont, Belfast.
Veterinary record (ENGLAND) Nov 23 1996, 139 (21) p523-4, ISSN 0042-4900 Journal Code: 0031164
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Tags: Animal; Female; Pregnancy
Descriptors: Abortion, Veterinary--etiology--ET; *Cattle Diseases --parasitology--PS; *Coccidiosis--complications--CO; *Coccidiosis --veterinary--VE; * **Neospora** ; Animals, Newborn--parasitology--PS; Cattle; Cattle Diseases--physiopathology--PP; Coccidiosis--physiopathology--PP
Record Date Created: 19970304
Record Date Completed: 19970304

18/9/6 (Item 6 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

10761794 97111744 PMID: 8953546
Central nervous system neosporosis in a foal.
Lindsay D S; Steinberg H; Dubielzig R R; Semrad S D; Konkle D M; Miller P E; Blagburn B L
Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849-5519, USA.
Journal of veterinary diagnostic investigation - official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc (UNITED STATES) Oct 1996, 8 (4) p507-10, ISSN 1040-6387
Journal Code: 9011490
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Tags: Animal; Case Report; Female
Descriptors: Brain Diseases--veterinary--VE; *Coccidiosis--veterinary--VE ; *Horse Diseases; *Muscular Diseases--veterinary--VE; * **Neospora** ; Brain Diseases--parasitology--PS; Brain Diseases--pathology--PA; Coccidiosis --pathology--PA; Cysts--parasitology--PS; Cysts--pathology--PA; Cysts --veterinary--VE; Horses; Muscular Diseases--parasitology--PS; Muscular Diseases--pathology--PA; **Neospora** --isolation and purification--IP
Record Date Created: 19970314
Record Date Completed: 19970314

18/9/7 (Item 7 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

10759880 97109766 PMID: 8952023
Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S; Trees A J; Stobart R H

University of Wyoming, College of Agriculture, Department of Veterinary Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,
ISSN 0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six groups of six pregnant ewes each were inoculated with 170,000 or 1,700,000 tachyzoites of *Neospora* caninum on gestation day 65, 90, or 120. All ewes seroconverted, and none showed signs of illness other than abortion. Regardless of the inoculum dose, all ewes inoculated on gestation day 65 aborted; ewes inoculated on gestation day 90 aborted, gave birth to weak lambs, or gave birth to clinically normal lambs; and all ewes inoculated on gestation day 120 gave birth to clinically normal lambs. Using an immunohistological procedure that stains bradyzoites, we observed protozoal cysts in brains of 11 of 29 (38%) aborted fetuses, in one of four (25%) weak lambs, and in seven of 18 (39%) clinically normal lambs. Cysts were not observed in extraneural tissues from two clinically normal lambs that had cysts in the brain. No evidence of infection was observed in tissues of five ewes examined using an immunohistological procedure that stains *N. caninum* tachyzoites and bradyzoites. Multifocal nonsuppurative encephalitis was observed in 46 of 51 (90%) aborted, weak, or clinically normal lambs. Cerebral necrosis, dystrophic mineralization, and meningitis were also commonly identified in live and aborted lambs (even when severely autolyzed). Nonsuppurative, necrotizing placentitis was observed in 15 of 17 (88%) placentas. Nonsuppurative myositis was common in fetuses but not in live lambs. Inflammation occurred less frequently in liver and lung. Clinical and pathological features of neosporosis in sheep closely resemble those of bovine neosporosis and ovine toxoplasmosis. Although abortion caused by naturally occurring neosporosis in sheep has not been reported, diagnosticians should carefully distinguish between neosporosis and toxoplasmosis in cases of ovine protozoal abortion unless future investigations exclude the likelihood of naturally acquired neosporosis in sheep.

Tags: Animal; Comparative Study; Female; Human; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Animals, Newborn--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* --isolation and purification--IP; *Pregnancy Complications, Parasitic--veterinary--VE; *Sheep Diseases--pathology--PA; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--analysis--AN; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--etiology--ET; Coccidiosis--pathology--PA; Disease Models, Animal; Encephalitis--pathology--PA; Encephalitis--veterinary--VE; Immunohistochemistry--methods--MT; Incidence; Liver--pathology--PA; Lung--pathology--PA; Myositis--pathology--PA; Myositis--veterinary--VE; Necrosis; *Neospora* --immunology--IM; Pregnancy Complications, Parasitic--pathology--PA; Sheep; Sheep Diseases--etiology--ET; Toxoplasmosis, Animal--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970306

Record Date Completed: 19970306

18/9/8 (Item 8 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10750517 97100246 PMID: 8944807

Neosporosis as a cause of equine protozoal myeloencephalitis.

Marsh A E; Barr B C; Madigan J; Lakritz J; Nordhausen R; Conrad P A
Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine, University of California, Davis 95616-8745, USA.

Journal of the American Veterinary Medical Association (UNITED STATES)
Dec 1 1996, 209 (11) p1907-13, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neosporosis was diagnosed in an 11-year-old Quarter Horse gelding with clinical signs and diagnostic test results compatible with equine protozoal myeloencephalitis (EPM). Presumptive postmortem diagnosis of EPM attributable to Sarcocystis neurona infection is generally made on the basis of detecting an antibody titer to S neurona in the CSF or characteristic histologic lesions, even when parasites have not been specifically identified. Neosporosis was confirmed in the horse described here by use of immunohistochemical examination, in vitro culturing, and ultrastructural and molecular characterization of parasites from infected tissues. Antibody testing of serum and CSF samples indicated that Neospora-specific anti-bodies can react with S neurona proteins on western blot analysis. The confirmation that neosporosis in horses can mimic EPM emphasizes the need to broaden the etiologic definition of EPM beyond infections exclusively attributable to S neurona.

Tags: Animal; Case Report; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *Encephalomyelitis--veterinary--VE; *Horse Diseases--parasitology--PS; * Neospora --isolation and purification--IP; Antibodies, Protozoan--cerebrospinal fluid--CF; Antibodies, Protozoan--immunology--IM; Antigens, Protozoan--analysis--AN; Coccidiosis--parasitology--PS; Encephalomyelitis--parasitology--PS; Horses; Immunohistochemistry; Neospora --immunology--IM; Neospora --ultrastructure--UL; Spinal Cord--parasitology--PS; Spinal Cord--ultrastructure--UL

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan)

Record Date Created: 19970130

Record Date Completed: 19970130

18/9/9 (Item 9 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10735493 97084977 PMID: 8931299

Clinical aspects of 27 cases of neosporosis in dogs.

Barber J S; Trees A J

Department of Veterinary Parasitology, Liverpool School of Tropical Medicine.

Veterinary record (ENGLAND) Nov 2 1996, 139 (18) p439-43, ISSN 0042-4900 Journal Code: 0031164

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Twenty-seven cases of neosporosis in European dogs are described. The disease was confirmed by immunohistochemistry, electron microscopy, or a favourable response to treatment in the dogs with appropriate clinical signs, and by the presence of antibodies to Neospora caninum but not to Toxoplasma gondii. The affected dogs were two days to seven years old, and of 13 different breeds. Both sexes were affected and in most cases littermates remained normal. Twenty-one cases had an initial hindlimb paresis or ataxia, in which muscle atrophy was the most consistent clinical sign. Rigid hyperextension developed in approximately half of the cases. Anorexia and pyrexia were rare. Other clinical signs included forelimb ataxia, head tremors with tetraparesis and sudden collapse due to myocarditis. Titres of > or = 1:800 in the N caninum indirect fluorescent antibody test were detected in the 20 cases from which serum samples were taken. Such high titres are rare in healthy dogs and strongly suggest a diagnosis of neosporosis. Sixteen of the dogs received appropriate antiprotozoal treatment with clindamycin, potentiated sulphonamides and/or pyrimethamine; 10 made a full or functional recovery. Recovery was less likely in peracute cases with severe clinical signs, and when the treatment was delayed.

Tags: Animal; Female; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--diagnosis--DI; *Dog Diseases--physiopathology--PP; * Neospora ; Anti-Infective Agents --therapeutic use--TU; Antibiotics--therapeutic use--TU; Antibodies,

Protozoan--blood--BL; Antimetabolites--therapeutic use--TU; Ataxia
--etiology--ET; Ataxia--physiopathology--PP; Ataxia--veterinary--VE;
Clindamycin--therapeutic use--TU; Coccidiosis--diagnosis--DI; Coccidiosis
--physiopathology--PP; Dog Diseases--drug therapy--DT; Dogs; Fluorescent
Antibody Technique, Indirect--veterinary--VE; Immunohistochemistry;
Microscopy, Electron--veterinary--VE; Muscle, Skeletal--physiology--PH;
Myocarditis--etiology--ET; Myocarditis--physiopathology--PP; Myocarditis
--veterinary--VE; **Neospora** --immunology--IM; **Neospora** --isolation and
purification--IP; Paresis--etiology--ET; Paresis--physiopathology--PP;
Paresis--veterinary--VE; Pyrimethamine--therapeutic use--TU; Sulfonamides
--therapeutic use--TU; Treatment Outcome
CAS Registry No.: 0 (Anti-Infective Agents); 0 (Antibiotics); 0
(Antibodies, Protozoan); 0 (Antimetabolites); 0 (Sulfonamides);
18323-44-9 (Clindamycin); 58-14-0 (Pyrimethamine)
Record Date Created: 19970224
Record Date Completed: 19970224

18/9/10 (Item 10 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
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10725699 97075132 PMID: 8917558

Apicidin: a novel antiprotozoal agent that inhibits parasite histone deacetylase.

Darkin-Rattray S J; Gurnett A M; Myers R W; Dulski P M; Crumley T M;
Allocco J J; Cannova C; Meinke P T; Colletti S L; Bednarek M A; Singh S B;
Goetz M A; Dombrowski A W; Polishook J D; Schmatz D M

Department of Parasite Biochemistry, Merck Research Laboratories, Rahway,
NJ 07065, USA.

Proceedings of the National Academy of Sciences of the United States of
America (UNITED STATES) Nov 12 1996, 93 (23) p13143-7, ISSN 0027-8424
Journal Code: 7505876

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A novel fungal metabolite, apicidin [cyclo(N-O-methyl-L-tryptophanyl-L-
-isoleuciny-L-D-pipecoliny-L-2-amino-8-oxodecanoyl)], that exhibits potent,
broad spectrum antiprotozoal activity in vitro against Apicomplexan
parasites has been identified. It is also orally and parenterally active in
vivo against Plasmodium berghei malaria in mice. Many Apicomplexan
parasites cause serious, life-threatening human and animal diseases, such
as malaria, cryptosporidiosis, toxoplasmosis, and coccidiosis, and new
therapeutic agents are urgently needed. Apicidin's antiparasitic activity
appears to be due to low nanomolar inhibition of Apicomplexan histone
deacetylase (HDA), which induces hyperacetylation of histones in treated
parasites. The acetylation-deacetylation of histones is a thought to play a
central role in transcriptional control in eukaryotic cells. Other known
HDA inhibitors were also evaluated and found to possess antiparasitic
activity, suggesting that HDA is an attractive target for the development
of novel antiparasitic agents.

Tags: Animal; Female; Human; Support, Non-U.S. Gov't

Descriptors: *Antiprotozoal Agents--pharmacology--PD; *Enzyme Inhibitors
--pharmacology--PD; *Histone Deacetylases--antagonists and inhibitors--AI;
*Malaria--drug therapy--DT; *Peptides, Cyclic--pharmacology--PD;
*Plasmodium berghei; *Protozoa--drug effects--DE; Eimeria tenella--drug
effects--DE; Kinetics; Mice; Mice, Inbred BALB C; **Neospora** --drug effects
--DE; Peptides, Cyclic--therapeutic use--TU; Plasmodium falciparum--drug
effects--DE; Protein Binding; Protozoan Infections--drug therapy--DT;
Structure-Activity Relationship; Toxoplasma--drug effects--DE

CAS Registry No.: 0 (Antiprotozoal Agents); 0 (Enzyme Inhibitors); 0
(Peptides, Cyclic); 0 (apicidin); 83209-65-8 (HC toxin)

Enzyme No.: EC 3.5.1.- (Histone Deacetylases)

Record Date Created: 19961230

Record Date Completed: 19961230

18/9/11 (Item 11 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
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10723243 97072664 PMID: 8915429

Culling associated with Neospora caninum infection in dairy cows.
Thurmond M C; Hietala S K
Department of Medicine and Epidemiology, School of Veterinary Medicine,
University of California, Davis 95616, USA.
American journal of veterinary research (UNITED STATES) Nov 1996, 57
(11) p1559-62, ISSN 0002-9645 Journal Code: 0375011
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

OBJECTIVES: To estimate the extent to which cows infected with *Neospora caninum* were culled, compared with noninfected cows, and to identify differences in reasons for culling between infected and noninfected cows. ANIMALS: 442 Holstein cows on a commercial dairy with 36% seroprevalence for *N. caninum*. PROCEDURE: Culling of cows was done after first calving without knowledge of *N. caninum* serologic status. RESULTS: Risk of a seropositive cow dying was not different from that of a seronegative cow ($P = 0.50$). Seropositive cows were culled 6.3 months earlier than seronegative cows, and had a 1.6 times greater risk of being culled, compared with seronegative cows ($P = 0.004$), after adjusting for culling risk associated with abortion. For cows culled for low milk production, culling risk for a seropositive cow was twice that for a seronegative cow ($P = 0.007$). CONCLUSIONS: The economic impact of *N. caninum* infection in dairy cattle can be expected to extend beyond that for abortion alone. Costs of the disease also may include premature culling and diminished milk production. CLINICAL RELEVANCE: Plans to control *N. caninum* infection on dairies should include consideration that benefits may include reduction in premature culling and increase in milk production.

Tags: Animal; Female; Pregnancy; Support, Non-U.S. Gov't
Descriptors: Cattle Diseases--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* ; Abortion, Veterinary--parasitology--PS; Animal Husbandry ; California; Cattle
Record Date Created: 19970429
Record Date Completed: 19970429

18/9/12 (Item 12 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
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10703296 97052565 PMID: 8897199

Diagnosis of Neospora caninum and Toxoplasma gondii infection by PCR and DNA hybridization immunoassay.
Muller N; Zimmermann V; Hentrich B; Gottstein B
Institute of Parasitology, University of Berne, Switzerland.
nmueller@ipa.unibe.ch
Journal of clinical microbiology (UNITED STATES) Nov 1996, 34 (11)
p2850-2, ISSN 0095-1137 Journal Code: 7505564
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

A recently described PCR test for the identification of *Neospora caninum* and *Toxoplasma gondii* has been further developed and optimized in view of its practicability for routine diagnostic application. The *N. caninum*-specific PCR was adapted to the diagnostic operating standard of the *T. gondii*-specific PCR in that the uracil DNA glycosidase system was introduced, which eliminates potential carry-over contaminations of amplified target DNA from previous reactions. Furthermore, both PCR tests were optimized by including a DNA hybridization immunoassay based on the use of the commercially available Gen-eti-k DEIA kit. This assay allowed highly sensitive and specific detection of respective DNA amplification

products and thus substantially facilitated the reading and interpretation of the test results.

Tags: Animal; Human; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *DNA, Protozoan--genetics--GE;
* **Neospora** ; *Polymerase Chain Reaction--methods--MT; *Toxoplasmosis
--diagnosis--DI; *Toxoplasmosis, Animal--diagnosis--DI; Base Sequence;
Coccidiosis--diagnosis--DI; Coccidiosis--parasitology--PS; DNA Primers
--genetics--GE; Evaluation Studies; Immunoassay--methods--MT; Nucleic Acid
Hybridization; Toxoplasmosis--parasitology--PS; Toxoplasmosis, Animal
--parasitology--PS

CAS Registry No.: 0 (DNA Primers); 0 (DNA, Protozoan)

Record Date Created: 19970310

Record Date Completed: 19970310

18/9/13 (Item 13 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2004 The Dialog Corp. All rts. reserv.

10699401 97048654 PMID: 8893485

Neospora caninum infection in a Napolitan mastiff dog from Spain.

Pumarola M; Anor S; Ramis A J; Borrás D; Gorraiz J; Dubey J P

Department of Pathology and Animal Productions, School of Veterinary
Medicine, Autonomous University of Barcelona, Bellaterra, Spain.

Veterinary parasitology (NETHERLANDS) Sep 16 1996, 64 (4) p315-7,
ISSN 0304-4017 Journal Code: 7602745

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Fetal neosporosis-associated myeloencephalitis was diagnosed in a
4-month-old Napolitan mastiff dog from Spain. **Neospora caninum**
tachyzoites and tissue cysts were observed in lesions in the central
nervous system and the diagnosis was confirmed by immunohistochemical
staining with anti-N. caninum monoclonal and polyclonal antibodies.

Tags: Animal; Case Report; Male

Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--pathology--PA;
*Encephalomyelitis--veterinary--VE; * **Neospora** --isolation and purification
--IP; Antibodies, Protozoan--blood--BL; Brain--parasitology--PS; Brain
--pathology--PA; Coccidiosis--parasitology--PS; Coccidiosis--pathology--PA
; Dog Diseases--parasitology--PS; Dogs; Encephalomyelitis--parasitology--PS
; Encephalomyelitis--pathology--PA; Fluorescent Antibody Technique;
Neospora --immunology--IM; Spain; Spinal Cord--parasitology--PS; Spinal
Cord--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970203

Record Date Completed: 19970203

18/9/14 (Item 14 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10698458 97047711 PMID: 8926100

**Subcellular localization and functional characterization of Nc-p43, a
major Neospora caninum tachyzoite surface protein.**

Hemphill A

Institute of Parasitology, University of Bern, Switzerland.
hemphill@ipa.unibe.ch

Infection and immunity (UNITED STATES) Oct 1996, 64 (10) p4279-87,
ISSN 0019-9567 Journal Code: 0246127

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum is a recently identified coccidian parasite which
shares many features with, but is clearly distinct from, *Toxoplasma gondii*.

N. caninum tachyzoites infect a wide range of mammalian cells both in vivo and in vitro. The mechanisms by which infection is achieved are largely unknown. Recent evidence has suggested that a receptor-ligand system in which one or several host cell receptors bind to one or several parasite ligands is involved. Parasite cell surface-associated molecules such as the recently identified Nc-p43 antigen are prime suspects for being implicated in this physical interaction. In this study it is shown that invasion of Vero cell monolayers by N. caninum tachyzoites in vitro is impaired on incubation of parasites with subagglutinating amounts of affinity-purified antibodies directed against Nc-p43. Postembedding immunogold labeling with anti-Nc-p43 antibodies demonstrated that Nc-p43 is localized not only on the parasite cell surface but also within dense granules and rhoptries. The fate of Nc-p43 during intracellular proliferation of N. caninum tachyzoites and subsequent maturation of the parasitophorous vacuole was also studied.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: **Neospora** --chemistry--CH; *Protozoan Proteins--analysis--AN; Antigen, Surface--analysis--AN; Cercopithecus aethiops; Immunohistochemistry; **Neospora** --ultrastructure--UL; Protozoan Proteins --physiology--PH; Rabbits; Vero Cells

CAS Registry No.: 0 (Antigens, Surface); 0 (Nc-p43 protein); 0 (Protozoan Proteins)

Record Date Created: 19961114

Record Date Completed: 19961114

18/9/15 (Item 15 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2004 The Dialog Corp. All rts. reserv.

10696181 97045418 PMID: 8890468

Neosporosis project.

Trees A J; Davison H C; Williams D J; Otter A; Bellworthy S J

Veterinary record (ENGLAND) Sep 21 1996, 139 (12) p299, ISSN

0042-4900 Journal Code: 0031164

Comment in Vet Rec. 1997 Dec 6;141(23) 607; Comment in PMID 9429280

Document type: Letter

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal

Descriptors: Cattle Diseases--diagnosis--DI; *Coccidiosis--veterinary--VE; * **Neospora**; Cattle; Cattle Diseases--epidemiology--EP; Cattle Diseases --prevention and control--PC; Coccidiosis--diagnosis--DI; Coccidiosis --epidemiology--EP; Great Britain--epidemiology--EP; Pilot Projects

Record Date Created: 19970203

Record Date Completed: 19970203

18/9/16 (Item 16 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10669488 97018561 PMID: 8865177

Discrimination of Neospora caninum from Toxoplasma gondii and other apicomplexan parasites by hybridization and PCR.

Kaufmann H; Yamage M; Roditi I; Dobbelaere D; Dubey J P; Holmdahl O J; Trees A; Gottstein B

Institute of Parasitology, University of Berne, Switzerland.

Molecular and cellular probes (ENGLAND) Aug 1996, 10 (4) p289-97,

ISSN 0890-8508 Journal Code: 8709751

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum is a protozoan parasite which causes neurological problems in dogs and abortion in cattle. As N. caninum is difficult to distinguish morphologically from Toxoplasma gondii, we developed a

molecular tool capable of discriminating between the two parasites. Genomic DNA was isolated from in vitro cultured *N. caninum* tachyzoites and cloned into a plasmid vector. Resulting colonies were subsequently screened by differential hybridization using *N. caninum* and *T. gondii* DNA. Two clones were characterized in detail: one clone, termed pNc5, was found to be specific for *N. caninum* whereas the second clone, pNc1, hybridized with DNA from both parasites. The sequence of pNc5 was determined and different oligonucleotide primers were designed for use in the polymerase chain reaction (PCR). A 944 bp fragment was specifically amplified from *N. caninum* DNA, but not from DNA extracted from *T. gondii* or different *Sarcocystis* species. Positive signals in PCR were obtained with as little as 100 pg parasite template DNA. In addition, dual PCR with primer pairs specific for *N. caninum* and *T. gondii* allowed the detection of either parasite in mixed samples.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: DNA Probes; *DNA, Protozoan--analysis--AN; * **Neospora** --genetics--GE; *Polymerase Chain Reaction--methods--MT; *Toxoplasma --genetics--GE; Base Sequence; Blotting, Southern; Cloning, Molecular; DNA, Protozoan--genetics--GE; Molecular Sequence Data; Sensitivity and Specificity; Sequence Analysis, DNA; Species Specificity

Molecular Sequence Databank No.: GENBANK/X84238

CAS Registry No.: 0 (DNA Probes); 0 (DNA, Protozoan)

Record Date Created: 19961227

Record Date Completed: 19961227

18/9/17 (Item 17 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2004 The Dialog Corp. All rts. reserv.

10655891 97004547 PMID: 8851858

Adhesion and invasion of bovine endothelial cells by *Neospora caninum*.

Hemphill A; Gottstein B; Kaufmann H

Institute for Parasitology, University of Berne, Switzerland.

Parasitology (ENGLAND) Feb 1996, 112 (Pt 2) p183-97, ISSN 0031-1820

Journal Code: 0401121

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum is a recently identified coccidian parasite which was, until 1988, misdiagnosed as *Toxoplasma gondii*. It causes paralysis and death in dogs and neonatal mortality and abortion in cattle, sheep, goats and horses. The life-cycle of **Neospora** has not yet been elucidated. The only two stages identified so far are tissue cysts and intracellularly dividing tachyzoites. Very little is known about the biology of this species. We have set up a fluorescence-based adhesion/invasion assay in order to investigate the interaction of *N. caninum* tachyzoites with bovine aorta endothelial (BAE) cells in vitro. Treatment of both host cells and parasites with metabolic inhibitors determined the metabolic requirements for adhesion and invasion. Chemical and enzymatic modifications of parasite and endothelial cell surfaces were used in order to obtain information on the nature of cell surface components responsible for the interaction between parasite and host. Electron microscopical investigations defined the ultrastructural characteristics of the adhesion and invasion process, and provided information on the intracellular development of the parasites.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: Endothelium, Vascular--parasitology--PS; * **Neospora** --pathogenicity--PY; Aorta; Carbohydrates--physiology--PH; Cattle; Cell Adhesion; Cell Membrane--parasitology--PS; Cell Membrane--ultrastructure --UL; Cells, Cultured; Coccidiosis--parasitology--PS; Cytochalasin D --pharmacology--PD; Cytoskeleton--drug effects--DE; Cytoskeleton --physiology--PH; Endothelium, Vascular--cytology--CY; Host-Parasite Relations; **Neospora** --growth and development--GD; **Neospora** --metabolism --ME; **Neospora** --ultrastructure--UL; Tissue Fixation

CAS Registry No.: 0 (Carbohydrates); 22144-77-0 (Cytochalasin D)

Record Date Created: 19961206

Record Date Completed: 19961206

18/9/18 (Item 18 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
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10655890 97004546 PMID: 8851857

Rapid and sensitive identification of *Neospora caninum* by in vitro amplification of the internal transcribed spacer 1.

Holmdahl O J; Mattsson J G
Department of Parasitology, Swedish University of Agricultural Sciences, Uppsala, Sweden.

Parasitology (ENGLAND) Feb 1996, 112 (Pt 2) p177-82, ISSN 0031-1820
Journal Code: 0401121

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum and *N. caninum*-like organisms are cyst-forming coccidian parasites known to cause neuromuscular disorders in dogs and abortion in cattle. In this article we report on the use of the polymerase chain reaction (PCR) for the detection of DNA from *N. caninum*. After determining the sequence of the internal transcribed spacer 1 (ITS1) of *N. caninum* and *Toxoplasma gondii*, and part of the sequences for 4 species of *Sarcocystis*, we designed a primer set for the amplification of a 279-base-pair fragment of ITS1 from *N. caninum*. The PCR system made possible the specific detection of 5 *N. caninum* organisms and no amplification was observed from any of the other cyst-forming coccidia tested, including the closely related *T. gondii*. Furthermore, we were also able to demonstrate the presence of *N. caninum* in brain and lung tissue samples from experimentally infected mice. Our data also link the 5.8S rRNA gene for *T. gondii* and *N. caninum* to the 16S-like rRNA gene, within the rDNA unit.

Tags: Animal; Female; Support, Non-U.S. Gov't

Descriptors: DNA, Protozoan--genetics--GE; *DNA, Ribosomal--genetics--GE; * ***Neospora*** --isolation and purification--IP; *Polymerase Chain Reaction --methods--MT; Base Sequence; Brain--parasitology--PS; DNA Primers; DNA, Protozoan--analysis--AN; DNA, Ribosomal--analysis--AN; Lung--parasitology --PS; Mice; Molecular Sequence Data; ***Neospora*** --genetics--GE; RNA, Ribosomal, 16S--genetics--GE; RNA, Ribosomal, 5.8S--genetics--GE; *Sarcocystis*--genetics--GE; Sensitivity and Specificity; Sequence Analysis, DNA; Species Specificity; *Toxoplasma*--genetics--GE

CAS Registry No.: 0 (DNA Primers); 0 (DNA, Protozoan); 0 (DNA, Ribosomal); 0 (RNA, Ribosomal, 16S); 0 (RNA, Ribosomal, 5.8S)

Record Date Created: 19961206

Record Date Completed: 19961206

18/9/19 (Item 19 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

10652939 97001588 PMID: 8844580

Evidence suggesting a point source exposure in an outbreak of bovine abortion due to neosporosis.

McAllister M M; Huffman E M; Hietala S K; Conrad P A; Anderson M L; Salman M D

California Veterinary Diagnostic Laboratory System, Tulare 93274, USA.

Journal of veterinary diagnostic investigation - official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc (UNITED STATES) Jul 1996, 8 (3) p355-7, ISSN 1040-6387

Journal Code: 9011490

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A Holstein dairy farm suffered an abortion outbreak due to neosporosis.

Abortion losses were > 18%. Cows with the highest **Neospora** antibody titers were at the greatest risk of aborting. Mummified fetuses were found after the 43rd day of the outbreak. The epidemic curve was suggestive of a point source exposure, which is consistent with the hypothesis that **Neospora** can be spread by a definitive host.

Tags: Animal; Female; Pregnancy

Descriptors: Abortion, Veterinary--parasitology--PS; *Cattle Diseases; *Coccidiosis--veterinary--VE; * **Neospora** ; *Pregnancy Complications, Parasitic--veterinary--VE; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--blood--BL; California--epidemiology--EP; Cattle; Coccidiosis--embryology--EM; Coccidiosis--epidemiology--EP; Cohort Studies ; Disease Outbreaks; Fetus--parasitology--PS; Incidence; Pregnancy Complications, Parasitic--epidemiology--EP

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970113

Record Date Completed: 19970113

18/9/20 (Item 20 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

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10619977 96437612 PMID: 8840259

Grant funds research into new parasite disease in dogs.

Journal of small animal practice (ENGLAND) Jul 1996, 37 (7) p352-3, ISSN 0022-4510 Journal Code: 0165053

Document type: News

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal

Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--parasitology--PS ; * **Neospora** ; Dogs; Research Support

Record Date Created: 19961211

Record Date Completed: 19961211

18/9/21 (Item 21 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

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10612019 96429628 PMID: 8832729

Identification of a major surface protein on *Neospora caninum* tachyzoites.

Hemphill A; Gottstein B

Institute of Parasitology, University of Berne, Switzerland.
hemphill@ipa.unibe.ch

Parasitology research (GERMANY) 1996, 82 (6) p497-504, ISSN 0932-0113 Journal Code: 8703571

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum is a recently identified coccidian parasite that is closely related to *Toxoplasma gondii*. Molecules associated with the surface of *N. caninum* tachyzoites are likely to be involved in the process of adhesion and invasion of host cells. They probably also participate in the interaction of the parasite with the immune system, and they could play an important role in the pathogenesis of the parasite. To identify such surface molecules, we performed subcellular fractionation studies of isolated *N. caninum* tachyzoites. Employing the nonionic detergent Triton-X-114, we prepared a membrane fraction. Immunoblot analysis of this fraction using polyclonal antisera directed against tachyzoites of *N. caninum* and *T. gondii* resulted in the identification of a protein of approximately 43 kDa (Nc-p43). This molecule was present in two isolates of **Neospora** (Nc-1 and Liverpool) but was absent in *Toxoplasma* (RH-strain) tachyzoites. Further immunofluorescence and immunogold transmission

electron microscopy (TEM) studies using affinity-purified anti-Nc-p43 antibodies demonstrated the presence of this molecule on the surface of N. caninum tachyzoites.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: Antigens, Protozoan--immunology--IM; *Antigens, Surface
--immunology--IM; * **Neospora** --immunology--IM; *Protozoan Proteins
--immunology--IM; Antibodies, Protozoan--immunology--IM; Cercopithecus
aethiops; Rabbits; Subcellular Fractions; Toxoplasma--immunology--IM; Vero
Cells

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan);
0 (Antigens, Surface); 0 (Nc-p43 protein); 0 (Protozoan Proteins)

Record Date Created: 19970116

Record Date Completed: 19970116

18/9/22 (Item 22 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10597319 96414865 PMID: 8817866

In vitro isolation of a bovine Neospora in Japan.

Yamane I; Kokuho T; Shimura K; Eto M; Haritani M; Ouchi Y; Sverlow K W;
Conrad P A

Veterinary record (ENGLAND) Jun 29 1996, 138 (26) p652, ISSN
0042-4900 Journal Code: 0031164

Document type: Letter

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal; Female

Descriptors: Cattle Diseases--microbiology--MI; *Coccidiosis--veterinary
--VE; * **Neospora** --isolation and purification--IP; Cattle; Japan

Record Date Created: 19961204

Record Date Completed: 19961204

?logoff hold

06feb04 16:32:03 User228206 Session D2113.5

that tissue cyst formation in vitro is a common phenomenon for *T. gondii* isolates.

Identifiers--Keywords Plus: CYST FORMATION; MICE; PATHOGENICITY;

ENCEPHALITIS; BRADYZOITES; TACHYZOITES; ANTIGENS; INVITRO; CATS

Research Fronts: 91-3815 001 (CEREBRAL TOXOPLASMOSIS; MAINTENANCE THERAPY; AIDS PATIENTS MIMICKING HIV-RELATED DEMENTIA)

91-5021 001 (TOXOPLASMA-GONDII TISSUE CYSTS; **NEOSPORA** -LIKE PROTOZOAN INFECTION; ENCEPHALITIS IN A RACCOON (*PROCYON-LOTOR*); ETIOLOGIC AGENT)

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SHIMADA K, 1974, V92, P496, ARCH OPHTHALMOL-CHIC
SPEER CA, 1985, V50, P566, INFECT IMMUN
STRITTMATTER CW, 1992, V83, P475, ACTA NEUROPATHOL
TOMAVO S, 1991, V59, P3750, INFECT IMMUN
WALDELAND H, 1983, V69, P171, J PARASITOL

28/9/45 (Item 7 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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03252444 Genuine Article#: NQ742 Number of References: 26

Title: EVALUATION OF THE SAFETY AND EFFICACY OF VACCINATION OF NURSING RIGS WITH LIVING TACHYZOITES OF 2 STRAINS OF TOXOPLASMA-GONDII

Author(s): PINCKNEY RD; LINDSAY DS ; BLAGBURN BL ; BOOSINGER TR;
MCLAUGHLIN SA; DUBEY JP

Corporate Source: AUBURN UNIV, COLL VET MED, DEPT PATHOBIOL/AUBURN//AL/36849

Journal: JOURNAL OF PARASITOLOGY, 1994, V80, N3 (JUN), P438-448

ISSN: 0022-3395

Language: ENGLISH Document Type: ARTICLE

Geographic Location: USA

Subfile: SciSearch; CC LIFE--Current Contents, Life Sciences; CC AGRI--

Current Contents, Agriculture, Biology & Environmental Sciences

Journal Subject Category: PARASITOLOGY

Abstract: The safety of vaccination and persistence and distribution of *Toxoplasma gondii* stages within tissues following vaccination were examined in 3-day-old nursing pigs vaccinated with living tachyzoites by intravenous and subcutaneous routes of either the TS-4 mutant strain or its parent RH strain of *T. gondii*. The efficacy of vaccination of nursing pigs with the TS-4 mutant was also examined in pigs challenged orally with oocysts following vaccination. Pigs were vaccinated with 3 x 10(5) living tachyzoites when 3 days old and boosted with 3 x 10(5) living tachyzoites when 17 days old. Group 1 had 2 pigs vaccinated intravenously (i.v.) with Hanks' balanced salt solution (HBSS) and served as a vaccination control. Group 2 had 5 pigs vaccinated i.v. with tachyzoites of the TS-4 mutant; 3 pigs were used to examine the safety, persistence, and distribution of the TS-4 mutant and 2 were used for oocyst challenge. Group 3 had 5 pigs vaccinated i.v. with tachyzoites of the RH strain and all were used to examine the safety, persistence, and distribution of the RH strain within their tissues. Group 4 had 3 pigs vaccinated subcutaneously (s.c.) with tachyzoites of

the TS-4 mutant; 1 was used to determine the persistence and distribution of the TS-4 mutant within its tissues and the other 2 pigs were used for GT-1 oocyst challenge studies. Group 5 had 3 pigs vaccinated s.c. with tachyzoites of the RH strain and all were used to examine the safety, persistence, and distribution of the RH strain within their tissues. None of the control pigs or pigs vaccinated with the TS-4 mutant developed clinical signs of disease or died prior to oocyst challenge. The TS-4 mutant was not reisolated from the tissues of vaccinated pigs nor were microscopic lesions present in the tissues of pigs that had been killed and examined at necropsy. Severe disease with clinical signs consisting of dyspnea, inactivity, diarrhea, and ocular lesions was observed in the group 3 pigs vaccinated i.v. with the RH strain. One pig died 7 days after initial vaccination. Microscopic lesions were observed in numerous tissues of all group 3 pigs. Swelling, erythema, and ulcers were observed at the site of inoculation in the group 5 pigs that were vaccinated s.c. with the RH strain. Minimal to no microscopic lesions were observed in these group 5 pigs. The RH strain was reisolated from pigs in both groups vaccinated with this strain. Control pigs and pigs vaccinated with the TS-4 mutant were challenged orally with 8×10^4 oocysts of the GT-1 strain at 33 days of age. Vaccination with the TS-4 mutant by intravenous or subcutaneous routes did not prevent tissue cyst formation in pigs following oocyst challenge. However, results of bioassays in mice indicated that pigs given the TS-4 mutant s.c. had fewer tissue cysts in their tissues after oocyst challenge.

Identifiers--KeyWords Plus: **NEOSPORA** -CANINUM; PIGS; MICE; PATHOGENICITY; CHALLENGE; IMMUNITY; PERSISTENCE; HAMSTERS; OOCYSTS

Research Fronts: 92-0906 003 (SEROPREVALENCE OF TOXOPLASMA-GONDII;
NEOSPORA -CANINUM IN CATTLE; DOMESTIC RABBITS)

Cited References:

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- DUBEY JP, 1987, V19, P337, EQUINE VET J
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- DUBEY JP, 1991, V77, P517, J PARASITOL
- DUBEY JP, 1988, P1, TOXOPLASMOSIS ANIMAL
- DUBEY JP, 1986, V19, P181, VET PARASITOL
- ELWELL MR, 1984, V45, P2663, AM J VET RES
- ELWELL MR, 1984, V45, P2668, AM J VET RES
- FOLKERS C, 1964, V76, P747, VET REC
- HANSEN HJ, 1969, V10, P292, ACTA VET SCAND
- JACOBS L, 1960, V46, P11, J PARASITOL
- LINDSAY DS, 1989, V50, P1981, AM J VET RES
- LINDSAY DS, 1990, V58, P2699, INFECT IMMUN
- LINDSAY DS, 1991, V77, P126, J PARASITOL
- LINDSAY DS, 1993, V79, P71, J PARASITOL
- MCLEOD R, 1988, V140, P1632, J IMMUNOL
- MOLLER T, 1970, V78, P241, ACTA PATHOLOGICA M A
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- WALDELAND H, 1983, V69, P171, J PARASITOL
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- WORK K, 1970, V78, P129, ACTA PATH MICROBIO B

28/9/40 (Item 2 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

04470045 Genuine Article#: TF343 Number of References: 13

Title: **CANINE CUTANEOUS NEOSPOROSIS - CLINICAL IMPROVEMENT WITH CLINDAMYCIN**

Author(s): DUBEY JP; METZGER FL; HATTEL AL; LINDSAY DS ; FRITZ DL

Corporate Source: USDA ARS, INST LIVESTOCK & POULTRY SCI, PARASITE BIOL & EPIDEMIOLOGICAL LAB, BLDG 1040, RM 104, BARC-E/BELTSVILLE//MD/20705; METZGER ANIM HOSP/STATE COLLEGE//PA/16801; PENN STATE UNIV, ANIM DIAGNOST LAB/UNIVERSITY PARK//PA/16802; AUBURN UNIV, COLL VET MED, DEPT

PATHOBIOL/AUBURN//AL/36849; USA,MED RES INST INFECT DIS,DIV PATHOL/FT
DETRICK//MD/21701

Journal: VETERINARY DERMATOLOGY, 1995, V6, N1, P37-43

ISSN: 0959-4493

Language: ENGLISH Document Type: NOTE

Geographic Location: USA

Subfile: SciSearch; CC AGRI--Current Contents, Agriculture, Biology &
Environmental Sciences

Journal Subject Category: VETERINARY SCIENCES

Abstract: Progranulomatous dermatitis caused by the protozoan parasite *Neospora caninum* was diagnosed in a 12-year-old Golden Retriever dog. Multiple draining nodules were located in the skin of the head and thorax. Numerous tachyzoites of *N. caninum* were found in histologic sections of the biopsy tissue from the cutaneous nodules and the diagnosis was confirmed by immunohistochemical staining and by electron microscopic examination. The dog had a 1:3200 serum antibody titer to *N. caninum* in the indirect fluorescent antibody test. The cutaneous lesions resolved after a 45-day treatment with clindamycin hydrochloride. The dog eventually died because of lymphosarcoma and also had a latent infection with *Toxoplasma gondii*. *Neospora caninum* could not be demonstrated by bioassays in cell culture or mice inoculated with canine tissue obtained at necropsy. Only degenerating *N. caninum* tachyzoites were seen in skin tissue taken at necropsy. These observations indicate that neosporosis should be considered in the differential diagnosis of pyogranulomatous dermatitis in dogs and that clindamycin may be an effective drug for treating cutaneous neosporosis.

Descriptors--Author Keywords: DOG ; DERMATITIS ; NEOSPOROSIS ; **NEOSPORA**
CANINUM ; CLINDAMYCIN ; TOXOPLASMA GONDII ; TOXOPLASMOSIS ;
LYMPHOSARCOMA

Identifiers--KeyWords Plus: TOXOPLASMA-GONDII; DOGS

Research Fronts: 93-5045 001 (FELINE IMMUNODEFICIENCY VIRUS; CATS
INFECTED; HISTOLOGICALLY CONFIRMED CLINICAL TOXOPLASMOSIS)

Cited References:

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DUBEY JP, 1988, V193, P1259, J AM VET MED ASSOC
DUBEY JP, 1995, V81, P48, J PARASITOL
DUBEY JP, 1993, V6, P1, PARASITIC PROTOZOA
DUBEY JP, 1988, P220, TOXOPLASMOSIS ANIMAL
FERGUSON DJP, 1989, V73, P483, PARASITOL RES
LINDSAY DS, 1983, V50, P1981, AM J VET RES
LINDSAY DS, 1994, V55, P976, AM J VET RES
LINDSAY DS, 1990, V57, P86, J HELMINTHOL SOC W
LINDSAY DS, 1989, V75, P163, J PARASITOL

?b 411

06feb04 16:43:36 User228206 Session D2113.6
\$0.03 0.008 DialUnits File155
\$0.03 Estimated cost File155
\$0.05 0.008 DialUnits File5
\$0.05 Estimated cost File5
\$1.52 0.074 DialUnits File34
\$23.80 4 Type(s) in Format 9
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\$25.32 Estimated cost File34
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\$0.03 Estimated cost File35
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\$0.07 0.008 DialUnits File71
\$0.07 Estimated cost File71
\$0.08 0.008 DialUnits File73
\$0.08 Estimated cost File73
\$0.04 0.008 DialUnits File91
\$0.04 Estimated cost File91

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$0.10 Estimated cost File399
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$0.17 Estimated cost File434
$0.04      0.008 DialUnits File444
$0.04 Estimated cost File444
$0.05      0.008 DialUnits File467
$0.05 Estimated cost File467
OneSearch, 26 files, 0.297 DialUnits FileOS
$0.24 TELNET
$28.46 Estimated cost this search
$28.46 Estimated total session cost 0.297 DialUnits

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File 411:DIALINDEX(R)

DIALINDEX(R)

(c) 2004 The Dialog Corporation plc

*** DIALINDEX search results display in an abbreviated ***

*** format unless you enter the SET DETAIL ON command. ***

?sf allscience

You have 281 files in your file list.

(To see banners, use SHOW FILES command)

?s neospora? (100n) (attenuat? or vaccin?)

Your SELECT statement is:

s neospora? (100n) (attenuat? or vaccin?)

Items	File
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34	5: Biosis Previews(R)_1969-2004/Feb W1
2	9: Business & Industry(R)_Jul/1994-2004/Feb 05
10	10: AGRICOLA_70-2004/Jan
4	16: Gale Group PROMT(R)_1990-2004/Feb 06
1	20: Dialog Global Reporter_1997-2004/Feb 06
46	34: SciSearch(R) Cited Ref Sci_1990-2004/Feb W1
1	47: Gale Group Magazine DB(TM)_1959-2004/Feb 05
37	50: CAB Abstracts_1972-2004/Dec
4	65: Inside Conferences_1993-2004/Feb W1
21	71: ELSEVIER BIOBASE_1994-2004/Feb W1
31	73: EMBASE_1974-2004/Feb W1

1 94: JICST-EPlus_1985-2004/Jan W4
 Examined 50 files
 3 112: UBM Industry News_1998-2004/Jan 27
 6 129: PHIND(Archival)_1980-2004/Feb W1
 1 130: PHIND(Daily & Current)_2004/Feb 06
 1 135: NewsRx Weekly Reports_1995-2004/Feb W1
 5 143: Biol. & Agric. Index_1983-2004/Jan
 23 144: Pascal_1973-2004/Jan W4
 2 148: Gale Group Trade & Industry DB_1976-2004/Feb 06
 36 155: MEDLINE(R)_1966-2004/Feb W1
 1 156: ToxFile_1965-2004/Jan W4
 12 162: Global Health_1983-2004/Dec
 3 185: Zoological Record Online(R)_1978-2004/Feb
 2 203: AGRIS_1974-2004/Jan
 Examined 100 files
 17 266: FEDRIP_2004/Dec
 1 286: Biocommerce Abs.& Dir._1981-2004/Jan B1
 4 292: GEOBASE(TM)_1980-2004/Jan
 12 340: CLAIMS(R)/US Patent_1950-04/Feb 05
 13 342: Derwent Patents Citation Indx_1978-04/200402
 1 344: Chinese Patents Abs_Aug 1985-2003/Nov
 3 345: Inpadoc/Fam.& Legal Stat_1968-2003/UD=200405
 4 347: JAPIO_Oct 1976-2003/Oct(Updated 040202)
 12 348: EUROPEAN PATENTS_1978-2004/Jan W05
 34 349: PCT FULLTEXT_1979-2002/UB=20040129,UT=20040122
 Examined 150 files
 19 357: Derwent Biotech Res._1982-2004/Feb W3
 1 369: New Scientist_1994-2004/Feb W1
 28 399: CA SEARCH(R)_1967-2004/UD=14006
 71 440: Current Contents Search(R)_1990-2004/Feb 06
 2 484: Periodical Abs Plustext_1986-2004/Feb W1
 Examined 200 files
 1 610: Business Wire_1999-2004/Feb 06
 1 621: Gale Group New Prod.Annou.(R)_1985-2004/Feb 06
 1 624: McGraw-Hill Publications_1985-2004/Feb 05
 7 636: Gale Group Newsletter DB(TM)_1987-2004/Feb 06
 1 649: Gale Group Newswire ASAP(TM)_2004/Jan 26
 56 654: US Pat.Full._1976-2004/Feb 03
 Examined 250 files
 1 761: Datamonitor Market Res._1992-2004/Jan

46 files have one or more items; file list includes 281 files.

?save temp

Temp SearchSave "TD792" stored

?rf

Your last SELECT statement was:

S NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

Ref	Items	File
N1	71	440: Current Contents Search(R)_1990-2004/Feb 06
N2	56	654: US Pat.Full._1976-2004/Feb 03
N3	46	34: SciSearch(R)_Cited Ref Sci_1990-2004/Feb W1
N4	37	50: CAB Abstracts_1972-2004/Dec
N5	36	155: MEDLINE(R)_1966-2004/Feb W1
N6	34	5: Biosis Previews(R)_1969-2004/Feb W1
N7	34	349: PCT FULLTEXT_1979-2002/UB=20040129,UT=20040122
N8	31	73: EMBASE_1974-2004/Feb W1
N9	28	399: CA SEARCH(R)_1967-2004/UD=14006
N10	23	144: Pascal_1973-2004/Jan W4

46 files have one or more items; file list includes 281 files.

- Enter P or PAGE for more -

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Your last SELECT statement was:

S NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

Ref	Items	File
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N11      21      71: ELSEVIER BIOBASE_1994-2004/Feb W1
N12      19     357: Derwent Biotech Res._1982-2004/Feb W3
N13      17     266: FEDRIP_2004/Dec
N14      13     342: Derwent Patents Citation Indx_1978-04/200402
N15      12     162: Global Health_1983-2004/Dec
N16      12     340: CLAIMS(R)/US Patent_1950-04/Feb 05
N17      12     348: EUROPEAN PATENTS_1978-2004/Jan W05
N18      10      10: AGRICOLA_70-2004/Jan
N19       7     636: Gale Group Newsletter DB(TM)_1987-2004/Feb 06
N20       6     129: PHIND(Archival)_1980-2004/Feb W1

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46 files have one or more items; file list includes 281 files.

- Enter P or PAGE for more -

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Your last SELECT statement was:

S NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

Ref	Items	File
N21	5	143: Biol. & Agric. Index_1983-2004/Jan
N22	4	16: Gale Group PROMT(R)_1990-2004/Feb 06
N23	4	65: Inside Conferences_1993-2004/Feb W1
N24	4	292: GEOBASE(TM)_1980-2004/Jan
N25	4	347: JAPIO_Oct 1976-2003/Oct(Updated 040202)
N26	3	112: UBM Industry News_1998-2004/Jan 27
N27	3	185: Zoological Record Online(R)_1978-2004/Feb
N28	3	345: Inpadoc/Fam.& Legal Stat_1968-2003/UD=200405
N29	2	9: Business & Industry(R)_Jul/1994-2004/Feb 05
N30	2	148: Gale Group Trade & Industry DB_1976-2004/Feb 06

46 files have one or more items; file list includes 281 files.

- Enter P or PAGE for more -

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Your last SELECT statement was:

S NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

Ref	Items	File
N31	2	203: AGRIS_1974-2004/Jan
N32	2	484: Periodical Abs Plustext_1986-2004/Feb W1
N33	1	20: Dialog Global Reporter_1997-2004/Feb 06
N34	1	47: Gale Group Magazine DB(TM)_1959-2004/Feb 05
N35	1	94: JICST-EPlus_1985-2004/Jan W4
N36	1	130: PHIND(Daily & Current)_2004/Feb 06
N37	1	135: NewsRx Weekly Reports_1995-2004/Feb W1
N38	1	156: ToxFile_1965-2004/Jan W4
N39	1	286: Biocommerce Abs.& Dir._1981-2004/Jan B1
N40	1	344: Chinese Patents Abs_Aug 1985-2003/Nov

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- Enter P or PAGE for more -

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Your last SELECT statement was:

S NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

Ref	Items	File
N41	1	369: New Scientist_1994-2004/Feb W1
N42	1	610: Business Wire_1999-2004/Feb 06
N43	1	621: Gale Group New Prod.Annou.(R)_1985-2004/Feb 06
N44	1	624: McGraw-Hill Publications_1985-2004/Feb 05
N45	1	649: Gale Group Newswire ASAP(TM)_2004/Jan 26
N46	1	761: Datamonitor Market Res._1992-2004/Jan
N47	0	2: INSPEC_1969-2004/Jan W4
N48	0	6: NTIS_1964-2004/Feb W2
N49	0	8: Ei Compendex(R)_1970-2004/Jan W4
N50	0	15: ABI/Inform(R)_1971-2004/Feb 06

46 files have one or more items; file list includes 281 files.

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Your last SELECT statement was:

S NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

Ref	Items	File
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N51	0	18: Gale Group F&S Index(R)_1988-2004/Feb 06
N52	0	19: Chem.Industry Notes_1974-2004/ISS 200405
N53	0	25: Weldasearch_1966-2002/Aug
N54	0	29: Meteor.& Geoastro.Abs._1970-2002/Jul
N55	0	31: World Surface Coatings_Abs_1976-2004/Dec
N56	0	35: Dissertation Abs Online_1861-2004/Jan
N57	0	40: Enviroline(R)_1975-2004/Dec
N58	0	42: Pharmaceuticl News Idx_1974-2004/Feb W1
N59	0	48: SPORTDiscus_1962-2004/Jan
N60	0	49: PAIS Int._1976-2004/Dec

46 files have one or more items; file list includes 281 files.

- Enter P or PAGE for more -

?b n5 n31 n35 n40 n38 n4 n6 n8 n9 n18 n21 n22 n25 n27 n41;exs
06feb04 16:46:51 User228206 Session D2113.7
\$6.72 2.988 DialUnits File411
\$6.72 Estimated cost File411
\$0.99 TELNET
\$7.71 Estimated cost this search
\$36.17 Estimated total session cost 3.284 DialUnits

SYSTEM:OS - DIALOG OneSearch

File 155:MEDLINE(R) 1966-2004/Feb W1

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***File 155: Medline is updating again (12-22-2003).**

Please see HELP NEWS 154, for details.

File 203:AGRIS 1974-2004/Jan

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File 94:JICST-EPlus 1985-2004/Jan W4

(c)2004 Japan Science and Tech Corp(JST)

File 344:Chinese Patents Abs Aug 1985-2003/Nov

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File 156:ToxFile 1965-2004/Jan W4

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File 50:CAB Abstracts 1972-2004/Dec

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File 5:Biosis Previews(R) 1969-2004/Feb W1

(c) 2004 BIOSIS

File 73:EMBASE 1974-2004/Feb W1

(c) 2004 Elsevier Science B.V.

File 399:CA SEARCH(R) 1967-2004/UD=14006

(c) 2004 American Chemical Society

***File 399: Use is subject to the terms of your user/customer agreement.**

Alert feature enhanced for multiple files, etc. See HELP ALERT.

File 10:AGRICOLA 70-2004/Jan

(c) format only 2004 The Dialog Corporation

File 143:Biol. & Agric. Index 1983-2004/Jan

(c) 2004 The HW Wilson Co

File 16:Gale Group PROMT(R) 1990-2004/Feb 06

(c) 2004 The Gale Group

***File 16: Alert feature enhanced for multiple files, duplicate removal, customized scheduling. See HELP ALERT.**

File 347:JAPIO Oct 1976-2003/Oct(Updated 040202)

(c) 2004 JPO & JAPIO

***File 347: JAPIO data problems with year 2000 records are now fixed.**

Alerts have been run. See HELP NEWS 347 for details.

File 185:Zoological Record Online(R) 1978-2004/Feb

(c) 2004 BIOSIS

File 369:New Scientist 1994-2004/Feb W1

(c) 2004 Reed Business Information Ltd.

Set	Items	Description
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Executing TD792		
>>>SET HIGHLIGHT: use ON, OFF, or 1-5 characters		
	4171	NEOSPORA?
	415472	ATTENUAT?
	567306	VACCIN?
S1	198	NEOSPORA? (100N) (ATTENUAT? OR VACCIN?)

?rd
>>>Duplicate detection is not supported for File 344.
>>>Duplicate detection is not supported for File 347.
>>>Records from unsupported files will be retained in the RD set.

...examined 50 records (50)
...examined 50 records (100)
...examined 50 records (150)
...completed examining records
S2 89 RD (unique items)

?s s2/1997:2004
Processing
Processed 10 of 15 files ...
Completed processing all files

89 S2
28990675 PY=1997 : PY=2004
S3 81 S2/1997:2004

?s s2 not s3
89 S2
81 S3
S4 8 S2 NOT S3

?t s4/free/all
>>>"FREE" is not a valid format name in file(s): 347, 399

4/8/1 (Item 1 from file: 155)
DIALOG(R)File 155:(c) format only 2004 The Dialog Corp. All rts. reserv.

08557594 95245895 PMID: 7728629

Protozoal causes of reproductive failure in domestic ruminants.
Nov 1994
Tags: Animal; Female; Pregnancy
Descriptors: *Abortion, Veterinary--parasitology--PS; *Fetal Death
--veterinary--VE; *Pregnancy Complications, Parasitic--veterinary--VE;
*Protozoan Infections, Animal; *Ruminants--parasitology--PS; Abortion,
Veterinary--physiopathology--PP; Cattle; Cattle Diseases--parasitology--PS;
Cattle Diseases--physiopathology--PP; Coccidiosis--complications--CO;
Coccidiosis--physiopathology--PP; Coccidiosis--veterinary--VE; Fetal
Death--parasitology--PS; Fetal Death--physiopathology--PP; Goat Diseases
--parasitology--PS; Goat Diseases--physiopathology--PP; Goats;
Mastigophora Infections--complications--CO; Mastigophora Infections
--physiopathology--PP; Mastigophora Infections--veterinary--VE; Neospora;
Pregnancy Complications, Parasitic--chemically induced--CI; Pregnancy
Complications, Parasitic--physiopathology--PP; Protozoan Infections
--complications--CO; Protozoan Infections--physiopathology--PP; Sarcocysto
sis--complications--CO; Sarcocystosis--physiopathology--PP; Sarcocystosis
--veterinary--VE; Sheep; Sheep Diseases--parasitology--PS; Sheep Diseases
--physiopathology--PP; Toxoplasmosis, Animal--complications--CO; Toxoplasm
osis, Animal--physiopathology--PP; Tritrichomonas foetus

4/8/2 (Item 1 from file: 203)
DIALOG(R)File 203:Dist by NAL, Intl Copr. All rights reserved. All rts.
reserv.

02103248
Diagnosis and control of coccidial infections
1996
Research and development for animal health

Descriptors in English: *CHICKENS; *COCCIDIOSIS; *TOXOPLASMOSIS; *

ZOONOSES; * **NEOSPORA** CANINUM; *CATTLE; *DIAGNOSIS; *DISEASE CONTROL; ***VACCINES** ; BIRDS; BOVIDAE; BOVINAE; COCCIDIA; DOMESTIC ANIMALS; DOMESTICATED BIRDS; GALLIFORMES; LIVESTOCK; MAMMALS; NEOSPORA; PARASITOSE; POULTRY; PROTOZOA; PROTOZOAL INFECTIONS; RUMINANTS; SPOROZOA; USEFUL ANIMALS; ZOONOSES;

Descriptors in Spanish: *POLLO; *COCCIDIOSIS; *TOXOPLASMOSIS; *ZOONOSIS; *NEOSPORA CANINUM; *GANADO BOVINO; *DIAGNOSTICO; *CONTROL DE ENFERMEDADES; *VACUNA; ANIMALES DOMESTICOS; ANIMALES UTILES; AVES DE CORRAL; AVES DOMESTICAS; BOVIDAE; BOVINAE; COCCIDIA; ENFERMEDADES PARASITARIAS; GALLIFORMES; GANADO; INFECCIONES POR PROTOZOOS; MAMIFEROS; NEOSPORA; PAJAROS; PROTOZOA; RUMIANTE; SPOROZOA; ZOONOSIS;

Descriptors in French: *POULET; *COCCIDIOSE; *TOXOPLASMOSE; *ZOONOSE; ***NEOSPORA** CANINUM; *BOVIN; *DIAGNOSTIC; *CONTROLE DE MALADIES; * **VACCIN** ; ANIMAL DOMESTIQUE; ANIMAL UTILE; BETAIL; BOVIDAE; BOVINAE; COCCIDIA; GALLIFORMES; MAMMIFERE; NEOSPORA; OISEAU; OISEAU DOMESTIQUE; PARASITOSE; PROTOZOA; PROTOZOOSE; RUMINANT; SPOROZOA; VOLAILLE; ZOONOSE;

Section Headings: L72 (ANIMAL PRODUCTION -- Pests of animals)

4/8/3 (Item 1 from file: 50)

DIALOG(R)File 50:(c) 2004 CAB International. All rts. reserv.

03088294 CAB Accession Number: 950807358
Coccidiosis research - COST effective.
Publication Year: 1995

DESCRIPTORS: coccidiosis; research; parasites
ORGANISM DESCRIPTORS: protozoa
GEOGRAPHIC NAMES: Europe
BROADER TERMS: invertebrates; animals
CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820)

4/8/4 (Item 2 from file: 50)

DIALOG(R)File 50:(c) 2004 CAB International. All rts. reserv.

02882863 CAB Accession Number: 940804709
Report from a Nordic seminar : coccidial infections of ruminants - diagnosis, epidemiology and control.
Publication Year: 1993

DESCRIPTORS: vaccines; toxoplasmosis; coccidiosis; epidemiology; diagnosis; control; molecular genetics; livestock; phylogeny; taxonomy; parasites
ORGANISM DESCRIPTORS: coccidia; Apicomplexa; ruminants; Artiodactyla; Bovidae; Eimeriidae; Sarcocystidae; protozoa
BROADER TERMS: domestic animals; vertebrates; Chordata; animals; Apicomplexa; Protozoa; invertebrates; Artiodactyla; mammals; ungulates; ruminants; Eucoccidiorida
CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820); Parasites, Vectors, Pathogens & Biogenic Diseases of Humans (VV200)

4/8/5 (Item 3 from file: 50)

DIALOG(R)File 50:(c) 2004 CAB International. All rts. reserv.

02864759 CAB Accession Number: 942208698
Annual report of the Health Service for Animals in North Netherlands for 1993.
Original Title: Jaarverslag 1993.
Publication Year: 1994

DESCRIPTORS: veterinary services; cattle diseases; swine diseases; sheep diseases
ORGANISM DESCRIPTORS: cattle; pigs; sheep

GEOGRAPHIC NAMES: Netherlands

BROADER TERMS: Bos; Bovidae; ruminants; Artiodactyla; mammals;
vertebrates; Chordata; animals; ungulates; Sus; Suidae; Suiformes; Ovis
; Western Europe; Europe; Benelux; Developed Countries; European
Communities; OECD Countries

CABICODES: Animal Health & Hygiene (General) (LL800); Parasites, Vectors,
Pathogens & Biogenic Diseases of Animals (LL820); Agriculture (General)
(AA000)

4/8/6 (Item 4 from file: 50)

DIALOG(R)File 50:(c) 2004 CAB International. All rts. reserv.

02814038 CAB Accession Number: 942202217

Helminthoses and protozoal infections of dogs and cats.

Original Title: Helminthoses et protozooses des carnivores domestiques.

Publication Year: 1993

DESCRIPTORS: anthelmintics; antiprotozoal agents; dog diseases; cat
diseases; parasitoses; helminthoses; reviews; protozoal infections;
domestic animals; helminths; parasites

ORGANISM DESCRIPTORS: cats; dogs; carnivores; Canidae; Felidae; protozoa

BROADER TERMS: vertebrates; Chordata; animals; invertebrates; Felis;

Felidae; Fissipeda; carnivores; mammals; Canis; Canidae

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals
(LL820); Animal Health & Hygiene (General) (LL800); Pets & Companion

Animals (LL070); Control by Chemicals & Drugs (HH400); Medical &

Veterinary Helminthology Records (Discontinued) (TT100); Medical &

Veterinary Protozoology Records (Discontinued) (TT200)

4/8/7 (Item 1 from file: 73)

06112546 EMBASE No: 1995143243

Cyst-forming coccidian parasites: Toxoplasma, Neospora, Sarcocystis

ZYSTENBILDENDE KOKZIDIEN: TOXOPLASMA, NEOSPORA, SARCOCYSTIS

1995

?logoff hold

06feb04 16:47:51 User228206 Session D2113.8

\$0.88 0.276 DialUnits File155

\$0.00 1 Type(s) in Format 8

\$0.00 1 Types

\$0.88 Estimated cost File155

\$0.17 0.071 DialUnits File203

\$0.00 1 Type(s) in Format 8

\$0.00 1 Types

\$0.17 Estimated cost File203

\$0.32 0.091 DialUnits File94

\$0.32 Estimated cost File94

\$1.33 0.128 DialUnits File344

\$1.33 Estimated cost File344

\$0.29 0.053 DialUnits File156

\$0.29 Estimated cost File156

\$0.92 0.204 DialUnits File50

\$0.00 4 Type(s) in Format 8

\$0.00 4 Types

\$0.92 Estimated cost File50

\$1.75 0.312 DialUnits File5

\$1.75 Estimated cost File5

\$2.25 0.230 DialUnits File73

\$0.00 1 Type(s) in Format 6

\$0.00 1 Types

\$2.25 Estimated cost File73

\$4.04 0.322 DialUnits File399

\$4.04 Estimated cost File399

\$0.19 0.070 DialUnits File10

\$0.19 Estimated cost File10

\$0.16 0.066 DialUnits File143

\$0.16 Estimated cost File143

\$1.66 0.307 DialUnits File16

\$1.66 Estimated cost File16
\$1.98 0.181 DialUnits File347
\$1.98 Estimated cost File347
\$0.45 0.073 DialUnits File185
\$0.45 Estimated cost File185
\$0.08 0.024 DialUnits File369
\$0.08 Estimated cost File369
OneSearch, 15 files, 2.407 DialUnits FileOS
\$0.50 TELNET
\$16.97 Estimated cost this search
\$53.14 Estimated total session cost 5.691 DialUnits

Status: Signed Off. (5 minutes)

Status: Path 1 of [Dialog Information Services via Modem]

Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
Trying 31060000009999...Open

DIALOG INFORMATION SERVICES

PLEASE LOGON:

***** HHHHHHHH SSSSSSSS?

Status: Signing onto Dialog

ENTER PASSWORD:

***** HHHHHHHH SSSSSSSS? *****

Welcome to DIALOG

Status: Connected

Dialog level 03.07.00D

Reconnected in file OS 06feb04 16:52:08

* * * ALL NEW CURRENT YEAR RANGES HAVE BEEN * * *

* * * INSTALLED * * *

SYSTEM:OS - DIALOG OneSearch

File 155:MEDLINE(R) 1966-2004/Feb W1

(c) format only 2004 The Dialog Corp.

*File 155: Medline is updating again (12-22-2003).

Please see HELP NEWS 154, for details.

File 203:AGRIIS 1974-2004/Jan

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File 94:JICST-EPlus 1985-2004/Jan W4

(c)2004 Japan Science and Tech Corp(JST)

File 344:Chinese Patents Abs Aug 1985-2003/Nov

(c) 2003 European Patent Office

File 156:ToxFile 1965-2004/Jan W4

(c) format only 2004 The Dialog Corporation

File 50:CAB Abstracts 1972-2004/Dec

(c) 2004 CAB International

File 5:Biosis Previews(R) 1969-2004/Feb W1

(c) 2004 BIOSIS

File 73:EMBASE 1974-2004/Feb W1

(c) 2004 Elsevier Science B.V.

File 399:CA SEARCH(R) 1967-2004/UD=14006

(c) 2004 American Chemical Society

*File 399: Use is subject to the terms of your user/customer agreement.

Alert feature enhanced for multiple files, etc. See HELP ALERT.

File 10:AGRICOLA 70-2004/Jan

(c) format only 2004 The Dialog Corporation

File 143:Biol. & Agric. Index 1983-2004/Jan

(c) 2004 The HW Wilson Co

File 16:Gale Group PROMT(R) 1990-2004/Feb 06

(c) 2004 The Gale Group

*File 16: Alert feature enhanced for multiple files, duplicate removal, customized scheduling. See HELP ALERT.

File 347:JAPIO Oct 1976-2003/Oct(Updated 040202)

(c) 2004 JPO & JAPIO

*File 347: JAPIO data problems with year 2000 records are now fixed.

Alerts have been run. See HELP NEWS 347 for details.

File 185:Zoological Record Online(R) 1978-2004/Feb

(c) 2004 BIOSIS

File 369:New Scientist 1994-2004/Feb W1

(c) 2004 Reed Business Information Ltd.

Set Items Description

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Cost is in DialUnits

?t s4/9/1 2 3 4 5 6 7

4/9/1 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2004 The Dialog Corp. All rts. reserv.

08557594 95245895 PMID: 7728629

Protozoal causes of reproductive failure in domestic ruminants.

Anderson M L; Barr B C; Conrad P A

California Veterinary Diagnostic Laboratory, Davis.

Veterinary clinics of North America. Food animal practice (UNITED STATES)

Nov 1994, 10 (3) p439-61, ISSN 0749-0720 Journal Code: 8511905

Document type: Journal Article; Review; Review, Tutorial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Protozoan parasites are a significant cause of abortion and infertility in domestic ruminants. Toxoplasma gondii, a widespread cause of abortion in sheep and goats, and Sarcocystis spp., which cause a common, frequently asymptomatic infection of domestic ruminants, both have a two-host life cycle. Carnivorous definitive hosts spread the infection through their feces and domestic ruminants are intermediate hosts. A similar, recently recognized protozoa, Neospora sp., has emerged as an important cause of reproductive disease, especially as an abortifacient in dairy cattle.

Neospora is presumed to also have a two-host life cycle, although the definitive host(s) has not been identified. The venereally transmitted Tritrichomonas foetus is an important cause of pregnancy loss in naturally bred cattle throughout the world. In the absence of effective methods for vaccination or treatment, control of these parasites is based on management procedures to reduce infection and transmission. (142 Refs.)

Tags: Animal; Female; Pregnancy

Descriptors: *Abortion, Veterinary--parasitology--PS; *Fetal Death--veterinary--VE; *Pregnancy Complications, Parasitic--veterinary--VE; *Protozoan Infections, Animal; *Ruminants--parasitology--PS; Abortion, Veterinary--physiopathology--PP; Cattle; Cattle Diseases--parasitology--PS; Cattle Diseases--physiopathology--PP; Coccidiosis--complications--CO; Coccidiosis--physiopathology--PP; Coccidiosis--veterinary--VE; Fetal Death--parasitology--PS; Fetal Death--physiopathology--PP; Goat Diseases--parasitology--PS; Goat Diseases--physiopathology--PP; Goats; Mastigophora Infections--complications--CO; Mastigophora Infections--physiopathology--PP; Mastigophora Infections--veterinary--VE; Neospora; Pregnancy Complications, Parasitic--chemically induced--CI; Pregnancy Complications, Parasitic--physiopathology--PP; Protozoan Infections--complications--CO; Protozoan Infections--physiopathology--PP; Sarcocystosis--complications--CO; Sarcocystosis--physiopathology--PP; Sarcocystosis--veterinary--VE; Sheep; Sheep Diseases--parasitology--PS; Sheep Diseases--physiopathology--PP; Toxoplasmosis, Animal--complications--CO; Toxoplasmosis, Animal--physiopathology--PP; Tritrichomonas foetus

Record Date Created: 19950601

Record Date Completed: 19950601

4/9/2 (Item 1 from file: 203)

DIALOG(R)File 203:AGRIIS

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02103248 AGRIS No: 97-037731

Diagnosis and control of coccidial infections

Uggla, A.

Research and development for animal health

Publisher: Statens Veterinärmedicinska Anstalt, Uppsala (Sweden), 1996

, p. 29-31

ISBN: 91-972469-0-5

Notes: 12 ref.

Language: English

Place of Publication: Sweden

Document Type: Analytic, Monograph,

Journal Announcement: 2303 Record input by Sweden

Descriptors in English: *CHICKENS; *COCCIDIOSIS; *TOXOPLASMOSIS; *ZONOSIS; *NEOSPOA CANINUM; *CATTLE; *DIAGNOSIS; *DISEASE CONTROL; *VACCINES; BIRDS; BOVIDAE; BOVINAE; COCCIDIA; DOMESTIC ANIMALS; DOMESTICATED BIRDS; GALLIFORMES; LIVESTOCK; MAMMALS; NEOSPOA; PARASITOSE; POULTRY; PROTOZOA; PROTOZOAL INFECTIONS; RUMINANTS; SPOROZOA; USEFUL ANIMALS; ZONOSIS;

Descriptors in Spanish: *POLLO; *COCCIDIOSIS; *TOXOPLASMOSIS; *ZONOSIS; *NEOSPOA CANINUM; *GANADO BOVINO; *DIAGNOSTICO; *CONTROL DE ENFERMEDADES; *VACUNA; ANIMALES DOMESTICOS; ANIMALES UTILES; AVES DE CORRAL; AVES DOMESTICAS; BOVIDAE; BOVINAE; COCCIDIA; ENFERMEDADES PARASITARIAS; GALLIFORMES; GANADO; INFECCIONES POR PROTOZOOS; MAMIFEROS; NEOSPOA; PAJAROS; PROTOZOA; RUMIANTE; SPOROZOA; ZONOSIS;

Descriptors in French: *POULET; *COCCIDIOSE; *TOXOPLASMOSE; *ZONOSE; *NEOSPOA CANINUM; *BOVIN; *DIAGNOSTIC; *CONTROLE DE MALADIES; *VACCIN; ANIMAL DOMESTIQUE; ANIMAL UTILE; BETAIL; BOVIDAE; BOVINAE; COCCIDIA; GALLIFORMES; MAMMIFERE; NEOSPOA; OISEAU; OISEAU DOMESTIQUE; PARASITOSE; PROTOZOA; PROTOZOOSE; RUMINANT; SPOROZOA; VOLAILLE; ZONOSE;
Section Headings: L72 (ANIMAL PRODUCTION -- Pests of animals)

4/9/3 (Item 1 from file: 50)

DIALOG(R)File 50:CAB Abstracts

(c) 2004 CAB International. All rts. reserv.

03088294 CAB Accession Number: 950807358

Coccidiosis research - COST effective.

Shirley, M. W.

Institute for Animal Health, Compton Laboratory, Compton, Newbury RG16 0NN, UK.

Parasitology Today vol. 11 (3): p.89-91

Publication Year: 1995 --

Language: English

Document Type: Conference paper; Journal article

A short account is given of the 1994 COST (European Co-operation in the field of Scientific and Technical Research) conference on coccidiosis held in Uppsala, Sweden, 29 September to 1 October, which marked the end of a 5-year programme on basic research on coccidiosis of poultry and farm animals, and development of vaccines using biotechnological procedures, and heralded the beginning of a new programme (1994 to 1999) which will focus more closely on the derivation of recombinant vaccines against the major coccidial parasites belonging to the genera Eimeria, Cryptosporidium, Toxoplasma and Neospora.

DESCRIPTORS: coccidiosis; research; parasites

ORGANISM DESCRIPTORS: protozoa

GEOGRAPHIC NAMES: Europe

BROADER TERMS: invertebrates; animals

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820)

4/9/4 (Item 2 from file: 50)

DIALOG(R)File 50:CAB Abstracts

(c) 2004 CAB International. All rts. reserv.

02882863 CAB Accession Number: 940804709

Report from a Nordic seminar : coccidial infections of ruminants - diagnosis, epidemiology and control.

Department of Parasitology, National Veterinary Institute and Swedish University of Agricultural Sciences, PO Box 7073, S-750 07 Uppsala, Sweden.

Bulletin of the Scandinavian Society for Parasitology vol. 3 (1):
p.37-47

Publication Year: 1993

ISSN: 0803-4907

Editors: Ugglå, A. --

Language: English

Document Type: Conference paper; Journal article

This report contains the abstracts of the following papers presented at the seminar "Coccidial infections of ruminants - diagnosis, epidemiology and control" held in Uppsala, Sweden, 16-18 November 1992: the Coccidia - classification and identification (A. Ugglå); small subunit rRNA as a target molecule for diagnostic and phylogenetic studies of cyst-forming coccidia (O. Joakim & M. Holmdahl); *Neospora* caninum - an important pathogen of ruminants (J. P. Dubey); cryptosporidiosis in ruminants - epidemiological, clinical and diagnostic aspects (S. A. Henriksen); *Eimeria* coccidiosis in sheep in Norway: a historical review (O. Helle); *Eimeria alabamensis* coccidiosis in cattle in Sweden (C. Svensson); studies on an experimental *Toxoplasma* ISCOM vaccine (A. Lunden); vaccines against avian coccidiosis and ovine toxoplasmosis (H. J. Bos). 11 ref.

DESCRIPTORS: vaccines; toxoplasmosis; coccidiosis; epidemiology;
diagnosis; control; molecular genetics; livestock; phylogeny; taxonomy;
parasites

ORGANISM DESCRIPTORS: coccidia; Apicomplexa; ruminants; Artiodactyla;
Bovidae; Eimeriidae; Sarcocystidae; protozoa

BROADER TERMS: domestic animals; vertebrates; Chordata; animals;
Apicomplexa; Protozoa; invertebrates; Artiodactyla; mammals; ungulates;
ruminants; Eucoccidiorida

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals
(LL820); Parasites, Vectors, Pathogens & Biogenic Diseases of Humans
(VV200)

4/9/5 (Item 3 from file: 50)

DIALOG(R) File 50:CAB Abstracts

(c) 2004 CAB International. All rts. reserv.

02864759 CAB Accession Number: 942208698

Annual report of the Health Service for Animals in North Netherlands for 1993.

Original Title: Jaarverslag 1993.

Benedictus, G. (Director)

45 pp.

Publication Year: 1994

Publisher: Stichting Gezondheidsdienst voor Dieren in Noord-Nederland,
PO Box 361 -- 9200 AJ Drachten, Netherlands

Language: Dutch

Document Type: Annual report

Antibody to *Leptospira interrogans* serovar hardjo was present in 12% of milk samples from 3800 herds (compared with 16% in 1992 and 25% in 1991). Certification of herds free from hardjo commenced in December 1993. 325 herds were vaccinated against bovine paratuberculosis, and a testing scheme towards eradication commenced in 10 herds. *Neospora* was responsible for 182 of 1152 abortions in cows, with *Salmonella* dublin responsible for 182, and 'no obvious cause' in 541 (47%). Infectious bovine rhinotracheitis antibody was present in 13-18% of cattle. Nutritional problems were investigated in 135 herds. New regulations about antimicrobial substances in milk came into force in April 1993. Treatment of bovine endometritis by intra-uterine infusion of 2 g oxytetracycline or 100 ml of Lugol's iodine solution did not breach these regulations. The Netherlands was free from scrapie, but a voluntary surveillance scheme commenced in 240 of the 6524 sheep flocks in North Netherlands. An

abattoir survey for Aujeszky's disease showed that 22% of 341 blood samples were positive (compared with 36.2% of 3832 samples from the whole of the Netherlands). Subsidised vaccination became compulsory in September 1993. Semen from 744 stallions was tested for fertility. Equine rhinopneumonitis virus was responsible for abortion in 14 of 57 foals. Contagious equine endometritis was absent.

DESCRIPTORS: veterinary services; cattle diseases; swine diseases; sheep diseases

ORGANISM DESCRIPTORS: cattle; pigs; sheep

GEOGRAPHIC NAMES: Netherlands

BROADER TERMS: Bos; Bovidae; ruminants; Artiodactyla; mammals; vertebrates; Chordata; animals; ungulates; Sus; Suidae; Suiformes; Ovis; Western Europe; Europe; Benelux; Developed Countries; European Communities; OECD Countries

CABICODES: Animal Health & Hygiene (General) (LL800); Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820); Agriculture (General) (AA000)

4/9/6 (Item 4 from file: 50)

DIALOG(R)File 50:CAB Abstracts

(c) 2004 CAB International. All rts. reserv.

02814038 CAB Accession Number: 942202217

Helminthoses and protozoal infections of dogs and cats.

Original Title: Helminthoses et protozooses des carnivores domestiques.

Additional Authors: Bourdeau, P.

Recueil de Medecine Veterinaire vol. 169 (5/6): p.331-511

Publication Year: 1993 --

Language: French Summary Language: english; spanish

Document Type: Journal article

This issue of the journal is devoted to helminthoses and protozoal infections of dogs and cats. There is a forward by P. Bourdeau, giving a general account of the situation, followed by 5 papers on helminthoses of the digestive system (Toxocara, Ancylostoma, Taenia, Spiruroidea (Spirura, Spirocerca, Gnathostoma, Physaloptera), Trichuris); 2 on protozoal infections of the digestive system (Coccidia, Giardia); 4 on parasitoses of the cardiorespiratory system (Angiostrongylus, Aelurostrongylus, helminths in general, Dirofilaria); 6 on systematic parasitoses and those affecting the nervous system (Leishmania, Babesia, Hepatozoon, Toxoplasma, Neospora, Encephalitozoon); a paper on parasitic diseases that may be acquired while animals are travelling abroad with their owners; and 2 papers on disease control (covering anthelmintics, antiprotozoal agents, vaccines). many ref.

DESCRIPTORS: anthelmintics; antiprotozoal agents; dog diseases; cat diseases; parasitoses; helminthoses; reviews; protozoal infections; domestic animals; helminths; parasites

ORGANISM DESCRIPTORS: cats; dogs; carnivores; Canidae; Felidae; protozoa

BROADER TERMS: vertebrates; Chordata; animals; invertebrates; Felis;

Felidae; Fissipeda; carnivores; mammals; Canis; Canidae

CABICODES: Parasites, Vectors, Pathogens & Biogenic Diseases of Animals (LL820); Animal Health & Hygiene (General) (LL800); Pets & Companion Animals (LL070); Control by Chemicals & Drugs (HH400); Medical & Veterinary Helminthology Records (Discontinued) (TT100); Medical & Veterinary Protozoology Records (Discontinued) (TT200)

4/9/7 (Item 1 from file: 73)

DIALOG(R)File 73:EMBASE

(c) 2004 Elsevier Science B.V. All rts. reserv.

06112546 EMBASE No: 1995143243

Cyst-forming coccidian parasites: Toxoplasma, Neospora, Sarcocystis

ZYSTENBILDENDE KOKZIDIEN: TOXOPLASMA, NEOSPORA, SARCOCYSTIS

Gottstein B.

Inst. f. Parasitol./Veterinarmed., Medizinische Fakultät, Universität Bern, Langgassstrasse 120, CH-3012 Bern Switzerland

Schweizerische Medizinische Wochenschrift (SCHWEIZ. MED. WOCHENSCHR.) (Switzerland) 1995, 125/18 (890-898)
CODEN: SMWOA ISSN: 0036-7672
DOCUMENT TYPE: Journal; Conference Paper
LANGUAGE: GERMAN SUMMARY LANGUAGE: GERMAN; ENGLISH

The most important cyst-forming coccidian parasites in human and veterinary medicine belong to the genera of Toxoplasma, Neospora and Sarcocystis. Toxoplasma gondii shows its clinical relevance in congenital infections and opportunistic infections in immunodeficient patients. In veterinary medicine the parasite is predominantly the cause of important economic loss in livestock production. Neospora causes diseases resembling toxoplasmosis; neosporosis is one of the most important causes of bovine abortion in the US. Neospora caninum leads to myositis and paralysis in dogs. The potential implication of Neospora in toxoplasmosis-like diseases in humans is not yet known. Sarcocystis is usually a relatively harmless intestinal parasite in humans. Recent data from tropical areas suggest that man can also become an intermediate host for certain Sarcocystis species, which potentially represents a source of opportunistic infection and disease in areas with increasing HIV prevalence. In veterinary medicine, Sarcocystis causes muscle diseases and also abortion or myeloencephalitis with lethal outcome in certain animal species. Molecular epidemiological investigations have resulted in a new understanding of biological and population-genetic mechanisms relevant to the disease. Recently developed molecular techniques, such as transfection in protozoan parasites, are presently used not only to elucidate molecular-pathogenetic events in the course of disease, but also to prepare potential new immuno-therapeutic tools for future vaccination against infection or disease.

DRUG DESCRIPTORS:

unclassified drug

MEDICAL DESCRIPTORS:

*coccidiosis--prevention--pc; *coccidiosis--drug therapy--dt; *coccidiosis--epidemiology--ep; *coccidiosis--etiology--et; *sarcocystis; *toxoplasma gondii; *zoonosis

conference paper; disease course; human; immune deficiency; molecular biology; **neospora** caninum; **vaccination**

DRUG TERMS (UNCONTROLLED): toxoplasma vaccine--drug therapy--dt; toxoplasma vaccine--drug development--dv

SECTION HEADINGS:

004 Microbiology: Bacteriology, Mycology, Parasitology and Virology

017 Public Health, Social Medical and Epidemiology

037 Drug Literature Index

?t s4/3,kwic/8

>>>KWIC option is not available in file(s): 399

4/3,KWIC/8 (Item 1 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

(c) 2004 American Chemical Society. All rts. reserv.

121299107 CA: 121(25)299107d PATENT

Defective Sindbis virus expression vectors for manufacture of Toxoplasma gondii p30 antigens for vaccines

INVENTOR(AUTHOR): Grieve, Robert B.; Xiong, Cheng

LOCATION: USA

ASSIGNEE: Paravax, Inc.

PATENT: PCT International ; WO 9417813 A1 DATE: 940818

APPLICATION: WO 94US1398 (940208) *US 15414 (930208)

PAGES: 128 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: A61K-035/76A; A61K-039/00B; A61K-039/002B; A61K-039/02B; A61K-039/12B; C07K-015/04B; C12N-005/10B; C12N-007/01B; C12N-007/04B; C12N-015/30B; C12N-015/63B

DESIGNATED COUNTRIES: AT; AU; BB; BG; BR; BY; CA; CH; CN; CZ; DE; DK; ES; FI; GB; HU; JP; KP; KR; KZ; LK; LU; LV; MG; MN; MW; NL; NO; NZ; PL; PT; RO; RU; SD; SE; SK; UA; US; UZ; VN DESIGNATED REGIONAL: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; BF; BJ; CF; CG; CI; CM; GA; GN; ML; MR; NE; SN; TD; TG

?logoff hold

06feb04 16:52:14 User228206 Session D2113.9

\$0.08 0.025 DialUnits File155

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    $0.21  1 Type(s) in Format  9
    $0.21  1 Types
$0.29 Estimated cost File155
    $0.12    0.051 DialUnits File203
    $1.45  1 Type(s) in Format  9
    $1.45  1 Types
$1.57 Estimated cost File203
    $0.04    0.013 DialUnits File94
$0.04 Estimated cost File94
    $0.13    0.013 DialUnits File344
$0.13 Estimated cost File344
    $0.07    0.013 DialUnits File156
$0.07 Estimated cost File156
    $0.40    0.089 DialUnits File50
    $8.00  4 Type(s) in Format  9
    $8.00  4 Types
$8.40 Estimated cost File50
    $0.07    0.013 DialUnits File5
$0.07 Estimated cost File5
    $0.37    0.038 DialUnits File73
    $2.70  1 Type(s) in Format  9
    $2.70  1 Types
$3.07 Estimated cost File73
    $0.32    0.025 DialUnits File399
    $2.75  1 Type(s) in Format  3
    $2.75  1 Types
$3.07 Estimated cost File399
    $0.03    0.013 DialUnits File10
$0.03 Estimated cost File10
    $0.03    0.013 DialUnits File143
$0.03 Estimated cost File143
    $0.07    0.013 DialUnits File16
$0.07 Estimated cost File16
    $0.14    0.013 DialUnits File347
$0.14 Estimated cost File347
    $0.08    0.013 DialUnits File185
$0.08 Estimated cost File185
    $0.04    0.013 DialUnits File369
$0.04 Estimated cost File369
    OneSearch, 15 files,  0.355 DialUnits FileOS
$0.24 TELNET
$17.34 Estimated cost this search
$17.34 Estimated total session cost    0.355 DialUnits

```

Status: Signed Off. (1 minutes)

Status: Path 1 of [Dialog Information Services via Modem]

Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)
Trying 31060000009999...Open

DIALOG INFORMATION SERVICES

PLEASE LOGON:

***** HHHHHHHH SSSSSSSS?

Status: Signing onto Dialog

ENTER PASSWORD:

***** HHHHHHHH SSSSSSSS? *****

Welcome to DIALOG

Status: Connected

Dialog level 03.07.00D

Last logoff: 06feb04 17:23:08

Logon file405 09feb04 08:56:22

*** ANNOUNCEMENT ***

--File 654 - US published applications from March 15, 2001 to the present are now online. Please see HELP NEWS 654 for details.

--File 581 - The 2003 annual reload of Population Demographics is complete. Please see Help News581 for details.

--File 990 - NewsRoom now contains February 2003 to current records. File 992 - NewsRoom 2003 archive has been newly created and contains records from January 2003. The oldest months's records roll out of File 990 and into File 992 on the first weekend of each month. To search all 2003 records BEGIN 990, 992, or B NEWS2003, a new OneSearch category.

--Connect Time joins DialUnits as pricing options on Dialog. See HELP CONNECT for information.

--SourceOne patents are now delivered to your email inbox as PDF replacing TIFF delivery. See HELP SOURCE1 for more information.

--Important news for public and academic libraries. See HELP LIBRARY for more information.

--Important Notice to Freelance Authors--
See HELP FREELANCE for more information

NEW FILES RELEASED

***DIOGENES: Adverse Drug Events Database (File 181)
***World News Connection (File 985)
***Dialog NewsRoom - 2003 Archive (File 992)
***TRADEMARKSCAN-Czech Republic (File 680)
***TRADEMARKSCAN-Hungary (File 681)
***TRADEMARKSCAN-Poland (File 682)

UPDATING RESUMED

RELOADED

***Population Demographics -(File 581)
***CLAIMS Citation (Files 220-222)

REMOVED

>>> Enter BEGIN HOMEBASE for Dialog Announcements <<<
>>> of new databases, price changes, etc. <<<

* * * ALL NEW CURRENT YEAR RANGES HAVE BEEN * * *
* * * INSTALLED * * *

SYSTEM:HOME

Cost is in DialUnits

Menu System II: D2 version 1.7.9 term=ASCII

*** DIALOG HOMEBASE(SM) Main Menu ***

Information:

1. Announcements (new files, reloads, etc.)
2. Database, Rates, & Command Descriptions
3. Help in Choosing Databases for Your Topic
4. Customer Services (telephone assistance, training, seminars, etc.)
5. Product Descriptions

Connections:

6. DIALOG(R) Document Delivery
7. Data Star(R)

/H = Help

/L = Logoff

/NOMENU = Command Mode

Enter an option number to view information or to connect to an online service. Enter a BEGIN command plus a file number to search a database (e.g., B1 for ERIC).

?b 155

```

09feb04 08:56:23 User228206 Session D2114.1
      $0.00      0.155 DialUnits FileHomeBase
$0.00 Estimated cost FileHomeBase
$0.00 Estimated cost this search
$0.00 Estimated total session cost      0.155 DialUnits

```

Status: Break Sent.

?e neospora

Ref	Items	RT	Index-term
E1	2		NEOSPLA
E2	2		NEOSPONGIOCOCCUM
E3	695	3	*NEOSPORA
E4	12		NEOSPORA --CHEMISTRY --CH
E5	29		NEOSPORA --CLASSIFICATION --CL
E6	2		NEOSPORA --CYTOLOGY --CY
E7	12		NEOSPORA --DRUG EFFECTS --DE
E8	4		NEOSPORA --ENZYMOLGY --EN
E9	103		NEOSPORA --GENETICS --GE
E10	64		NEOSPORA --GROWTH AND DEVELOPMENT --GD
E11	263		NEOSPORA --IMMUNOLOGY --IM
E12	199		NEOSPORA --ISOLATION AND PURIFICATION --IP

Enter P or PAGE for more

?s au=brake ? or au=blagburn ? or au=lindsay ?

306 AU=BRAKE ?

168 AU=BLAGBURN ?

3366 AU=LINDSAY ?

S1 3732 AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?

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Set	Items	Description
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?e neospora

Ref	Items	RT	Index-term
E1	2		NEOSPLA
E2	2		NEOSPONGIOCOCCUM
E3	695	3	*NEOSPORA
E4	12		NEOSPORA --CHEMISTRY --CH
E5	29		NEOSPORA --CLASSIFICATION --CL
E6	2		NEOSPORA --CYTOLOGY --CY
E7	12		NEOSPORA --DRUG EFFECTS --DE
E8	4		NEOSPORA --ENZYMOLGY --EN
E9	103		NEOSPORA --GENETICS --GE
E10	64		NEOSPORA --GROWTH AND DEVELOPMENT --GD
E11	263		NEOSPORA --IMMUNOLOGY --IM
E12	199		NEOSPORA --ISOLATION AND PURIFICATION --IP

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E14	3		NEOSPORA --PARASITOLOGY --PS
E15	52		NEOSPORA --PATHOGENICITY --PY
E16	27		NEOSPORA --PHYSIOLOGY --PH
E17	30		NEOSPORA --ULTRASTRUCTURE --UL

E18	0	1	NEOSPORA CANINUM
E19	1		NEOSPORAL
E20	2		NEOSPORANS
E21	70		NEOSPORIN
E22	6		NEOSPOROSE
E23	195		NEOSPOROSIS
E24	1		NEOSQUAMOCOLUMNAR

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?s e3-e18

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29	NEOSPORA --CLASSIFICATION --CL
2	NEOSPORA --CYTOLOGY --CY
12	NEOSPORA --DRUG EFFECTS --DE
4	NEOSPORA --ENZYMولوجY --EN
103	NEOSPORA --GENETICS --GE
64	NEOSPORA --GROWTH AND DEVELOPMENT --GD
263	NEOSPORA --IMMUNOLOGY --IM
199	NEOSPORA --ISOLATION AND PURIFICATION --IP
14	NEOSPORA --METABOLISM --ME
3	NEOSPORA --PARASITOLOGY --PS
52	NEOSPORA --PATHOGENICITY --PY
27	NEOSPORA --PHYSIOLOGY --PH
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0	NEOSPORA CANINUM

S2 695 E3-E18

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R4	86	B	5	SARCOCYSTIDAE

?s r1-r3

695	NEOSPORA
15	DC=B1.500.841.75.189.250.750.550. (NEOSPORA)
0	NEOSPORA CANINUM

S3 695 R1-R3

?e e18

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E3	1021	*E18
E4	2	E18A
E5	1	E18C15W15
E6	3	E18D
E7	1	E18G
E8	1	E18H
E9	1	E18Q
E10	1	E18S
E11	11	E180
E12	2	E180A

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?e neospora

Ref	Items	RT	Index-term
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E2	2		NEOSPONGIOCOCCUM
E3	695	3	*NEOSPORA
E4	12		NEOSPORA --CHEMISTRY --CH
E5	29		NEOSPORA --CLASSIFICATION --CL
E6	2		NEOSPORA --CYTOLOGY --CY
E7	12		NEOSPORA --DRUG EFFECTS --DE
E8	4		NEOSPORA --ENZYMولوجY --EN
E9	103		NEOSPORA --GENETICS --GE
E10	64		NEOSPORA --GROWTH AND DEVELOPMENT --GD

E11 263 NEOSPORA --IMMUNOLOGY --IM
 E12 199 NEOSPORA --ISOLATION AND PURIFICATION --IP

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Ref	Items	RT	Index-term
E13	14		NEOSPORA --METABOLISM --ME
E14	3		NEOSPORA --PARASITOLOGY --PS
E15	52		NEOSPORA --PATHOGENICITY --PY
E16	27		NEOSPORA --PHYSIOLOGY --PH
E17	30		NEOSPORA --ULTRASTRUCTURE --UL
E18	0	1	NEOSPORA CANINUM
E19	1		NEOSPORAL
E20	2		NEOSPORANS
E21	70		NEOSPORIN
E22	6		NEOSPOROSE
E23	195		NEOSPOROSIS
E24	1		NEOSQUAMOCOLUMNAR

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Ref	Items	Type	RT	Index-term
R1	0		1	*NEOSPORA CANINUM
R2	695	X	3	NEOSPORA

?s r1-r3

0	NEOSPORA CANINUM
695	NEOSPORA
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S4 695 R1-R3

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S1	3732	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
S2	695	E3-E18
S3	695	R1-R3
S4	695	R1-R3

?s s1 and s2

3732	S1
695	S2
S5	76 S1 AND S2

?s s5/1998:2004

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?s s5/1997:2004

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?s s5 not s7

76	S5
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S8	39 S5 NOT S7

?t s8/9/all

8/9/1

DIALOG(R)File 155:MEDLINE(R)

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10819880 97109766 PMID: 8952023

Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S ; Trees A J;
 Stobart R H

University of Wyoming, College of Agriculture, Department of Veterinary
 Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,

ISSN 0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Six groups of six pregnant ewes each were inoculated with 170,000 or 1,700,000 tachyzoites of *Neospora* caninum on gestation day 65, 90, or 120. All ewes seroconverted, and none showed signs of illness other than abortion. Regardless of the inoculum dose, all ewes inoculated on gestation day 65 aborted; ewes inoculated on gestation day 90 aborted, gave birth to weak lambs, or gave birth to clinically normal lambs; and all ewes inoculated on gestation day 120 gave birth to clinically normal lambs. Using an immunohistological procedure that stains bradyzoites, we observed protozoal cysts in brains of 11 of 29 (38%) aborted fetuses, in one of four (25%) weak lambs, and in seven of 18 (39%) clinically normal lambs. Cysts were not observed in extraneural tissues from two clinically normal lambs that had cysts in the brain. No evidence of infection was observed in tissues of five ewes examined using an immunohistological procedure that stains *N. caninum* tachyzoites and bradyzoites. Multifocal nonsuppurative encephalitis was observed in 46 of 51 (90%) aborted, weak, or clinically normal lambs. Cerebral necrosis, dystrophic mineralization, and meningitis were also commonly identified in live and aborted lambs (even when severely autolyzed). Nonsuppurative, necrotizing placentitis was observed in 15 of 17 (88%) placentas. Nonsuppurative myositis was common in fetuses but not in live lambs. Inflammation occurred less frequently in liver and lung. Clinical and pathological features of neosporosis in sheep closely resemble those of bovine neosporosis and ovine toxoplasmosis. Although abortion caused by naturally occurring neosporosis in sheep has not been reported, diagnosticians should carefully distinguish between neosporosis and toxoplasmosis in cases of ovine protozoal abortion unless future investigations exclude the likelihood of naturally acquired neosporosis in sheep.

Tags: Animal; Comparative Study; Female; Human; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Animals, Newborn--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* --isolation and purification--IP; *Pregnancy Complications, Parasitic--veterinary--VE; *Sheep Diseases--pathology--PA; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--analysis--AN; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--etiology--ET; Coccidiosis--pathology--PA; Disease Models, Animal; Encephalitis--pathology--PA; Encephalitis--veterinary--VE; Immunohistochemistry--methods--MT; Incidence; Liver--pathology--PA; Lung--pathology--PA; Myositis--pathology--PA; Myositis--veterinary--VE; Necrosis; *Neospora* --immunology--IM; Pregnancy Complications, Parasitic--pathology--PA; Sheep; Sheep Diseases--etiology--ET; Toxoplasmosis, Animal--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970306

Record Date Completed: 19970306

8/9/2

DIALOG(R) File 155:MEDLINE(R)

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10761794 97111744 PMID: 8953546

Central nervous system neosporosis in a foal.

Lindsay D S ; Steinberg H; Dubielzig R R; Semrad S D; Konkle D M; Miller P E; Blagburn B L

Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849-5519, USA.

Journal of veterinary diagnostic investigation - official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc (UNITED STATES) Oct 1996, 8 (4) p507-10, ISSN 1040-6387

Journal Code: 9011490

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal; Case Report; Female

Descriptors: Brain Diseases--veterinary--VE; *Coccidiosis--veterinary--VE ; *Horse Diseases; *Muscular Diseases--veterinary--VE; * **Neospora** ; Brain Diseases--parasitology--PS; Brain Diseases--pathology--PA; Coccidiosis --pathology--PA; Cysts--parasitology--PS; Cysts--pathology--PA; Cysts --veterinary--VE; Horses; Muscular Diseases--parasitology--PS; Muscular Diseases--pathology--PA; **Neospora** --isolation and purification--IP

Record Date Created: 19970314

Record Date Completed: 19970314

8/9/3

DIALOG(R) File 155:MEDLINE(R)

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10759880 97109766 PMID: 8952023

Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S ; Trees A J; Stobart R H

University of Wyoming, College of Agriculture, Department of Veterinary Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,

ISSN 0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six groups of six pregnant ewes each were inoculated with 170,000 or 1,700,000 tachyzoites of **Neospora** caninum on gestation day 65, 90, or 120. All ewes seroconverted, and none showed signs of illness other than abortion. Regardless of the inoculum dose, all ewes inoculated on gestation day 65 aborted; ewes inoculated on gestation day 90 aborted, gave birth to weak lambs, or gave birth to clinically normal lambs; and all ewes inoculated on gestation day 120 gave birth to clinically normal lambs. Using an immunohistological procedure that stains bradyzoites, we observed protozoal cysts in brains of 11 of 29 (38%) aborted fetuses, in one of four (25%) weak lambs, and in seven of 18 (39%) clinically normal lambs. Cysts were not observed in extraneural tissues from two clinically normal lambs that had cysts in the brain. No evidence of infection was observed in tissues of five ewes examined using an immunohistological procedure that stains *N. caninum* tachyzoites and bradyzoites. Multifocal nonsuppurative encephalitis was observed in 46 of 51 (90%) aborted, weak, or clinically normal lambs. Cerebral necrosis, dystrophic mineralization, and meningitis were also commonly identified in live and aborted lambs (even when severely autolyzed). Nonsuppurative, necrotizing placentitis was observed in 15 of 17 (88%) placentas. Nonsuppurative myositis was common in fetuses but not in live lambs. Inflammation occurred less frequently in liver and lung. Clinical and pathological features of neosporosis in sheep closely resemble those of bovine neosporosis and ovine toxoplasmosis. Although abortion caused by naturally occurring neosporosis in sheep has not been reported, diagnosticians should carefully distinguish between neosporosis and toxoplasmosis in cases of ovine protozoal abortion unless future investigations exclude the likelihood of naturally acquired neosporosis in sheep.

Tags: Animal; Comparative Study; Female; Human; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Animals, Newborn--parasitology--PS; *Coccidiosis--veterinary --VE; * **Neospora** --isolation and purification--IP; *Pregnancy Complications, Parasitic--veterinary--VE; *Sheep Diseases--pathology--PA; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--analysis--AN ; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--etiology--ET ; Coccidiosis--pathology--PA; Disease Models, Animal; Encephalitis --pathology--PA; Encephalitis--veterinary--VE; Immunohistochemistry --methods--MT; Incidence; Liver--pathology--PA; Lung--pathology--PA; Myositis--pathology--PA; Myositis--veterinary--VE; Necrosis; **Neospora** --immunology--IM; Pregnancy Complications, Parasitic--pathology--PA; Sheep; Sheep Diseases--etiology--ET; Toxoplasmosis, Animal--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970306

Record Date Completed: 19970306

8/9/4

DIALOG(R) File 155:MEDLINE(R)

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10540497 96351915 PMID: 8720241

Demonstration of synergistic effects of sulfonamides and dihydrofolate reductase/thymidylate synthase inhibitors against *Neospora caninum* tachyzoites in cultured cells, and characterization of mutants resistant to pyrimethamine.

Lindsay D S ; Butler J M; Rippey N S; Blagburn B L

Department of Pathobiology, Auburn University, AL 36849-5519, USA.

American journal of veterinary research (UNITED STATES) Jan 1996, 57

(1) p68-72, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

OBJECTIVE: To examine the efficacies of combinations of 7 sulfonamides and 5 dihydrofolate reductase/thymidylate synthase (DHFR/TS) inhibitors against tachyzoites of *Neospora caninum* in cultured cells. Mutant tachyzoites that were resistant to pyrimethamine were produced and examined for resistance to other DHFR/TS inhibitors. **DESIGN AND PROCEDURES:** After 5 days of treatment, a cell culture flask lesion-based assay was used to determine efficacies of combinations of sulfonamides and DHFR/TS inhibitors against *N. caninum* tachyzoites and to evaluate the sensitivity of pyrimethamine-resistant mutants of *N. caninum* to test agents. Cultured cells that were infected with the appropriate strains of *N. caninum* and treated or not treated (controls) with test agents were examined. Mutations were induced by chemical mutagenesis with N-methyl-N'-nitro-N-nitrosoguanidine or by selection for growth in permissive concentration of pyrimethamine. **RESULTS:** Synergism was detected for combinations of pyrimethamine, ormetoprim, trimethoprim, or diaveridine with the sulfonamides. Methotrexate did not have improved efficacy when combined with sulfonamides. Two mutants were produced that were resistant to pyrimethamine. Both mutants were resistant to other DHFR/TS inhibitors. Both mutants remained resistant to pyrimethamine in the absence of continuous exposure to the agent, indicating that the induced resistance was stable. Synergism was detected for combinations of DHFR/TS inhibitors and sulfonamides against these pyrimethamine-resistant mutants. **CONCLUSIONS:** Combinations of suboptimal concentrations of sulfonamides with suboptimal concentrations of DHFR/TS inhibitors results in improved efficacy of the agents in a cell culture assay. Stable resistance to pyrimethamine can be induced in *N. caninum* tachyzoites by use of chemical mutagenesis or by selection. **CLINICAL RELEVANCE:** In vitro evidence indicated that combination treatment, using sulfonamides and DHFR/TS inhibitors, may be effective in treating neosporosis.

Tags: Animal; Comparative Study; Human; Male; Support, Non-U.S. Gov't

Descriptors: Anti-Infective Agents--pharmacology--PD; *Coccidiostats--pharmacology--PD; *Enzyme Inhibitors--pharmacology--PD; * *Neospora* --drug effects--DE; *Sulfonamides--pharmacology--PD; Cell Line; Drug Resistance; Drug Synergism; Fibroblasts; Folic Acid Antagonists--pharmacology--PD; *Neospora* --growth and development--GD; Pyrimethamine--pharmacology--PD; Pyrimidines--pharmacology--PD; Skin; Tetrahydrofolate Dehydrogenase; Thymidylate Synthase--antagonists and inhibitors--AI; Trimethoprim--pharmacology--PD

CAS Registry No.: 0 (Anti-Infective Agents); 0 (Coccidiostats); 0 (Enzyme Inhibitors); 0 (Folic Acid Antagonists); 0 (Pyrimidines); 0 (Sulfonamides); 5355-16-8 (diaveridine); 58-14-0 (Pyrimethamine); 6981-18-6 (ormetoprim); 738-70-5 (Trimethoprim)

Enzyme No.: EC 1.5.1.3 (Tetrahydrofolate Dehydrogenase); EC 2.1.1.45 (Thymidylate Synthase)

Record Date Created: 19970310

Record Date Completed: 19970310

8/9/5

DIALOG(R) File 155:MEDLINE(R)

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10515570 96326499 PMID: 8691381

Prevalence of Neospora caninum and Toxoplasma gondii antibodies in coyotes (Canis latrans) and experimental infections of coyotes with Neospora caninum.

Lindsay D S ; Kelly E J; McKown R D; Stein F J; Plozer J; Herman J; Blagburn B L ; Dubey J P

Department of Pathobiology, College of Veterinary Medicine, Auburn University, Alabama 36849-5519, USA.

Journal of parasitology (UNITED STATES) Aug 1996, 82 (4) p657-9,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Antibodies to **Neospora caninum** were detected in 5 (10%) of 52 coyotes from Texas. Antibodies to **Toxoplasma gondii** were detected in 32 (62%) of 52 samples from these same coyotes. Four (80%) of the 5 coyotes that were seropositive for **N. caninum** also had antibodies to **T. gondii**. Nineteen (37%) of the coyotes did not have antibodies to either parasite. Three coyote pups were inoculated with the brains from mice infected with 3 strains of **N. caninum** originally isolated from dogs. None of the pups developed neosporosis or excreted **N. caninum** oocysts in their feces. The pups developed anti-**N. caninum** antibody titers of > or = 1:800 but did not develop antibodies to **T. gondii**. Results of this study indicate that antibodies to **T. gondii** are more common than antibodies to **N. caninum** in coyotes. Additionally, young coyotes appear to be resistant to experimental **N. caninum** infection.

Tags: Animal; Female; Male; Support, Non-U.S. Gov't

Descriptors: Antibodies, Protozoan--blood--BL; *Carnivora--parasitology--PS; *Coccidiosis--veterinary--VE; * **Neospora** --immunology--IM; *Toxoplasma--immunology--IM; *Toxoplasmosis, Animal--epidemiology--EP; Agglutination Tests--veterinary--VE; Biological Assay; Brain--parasitology--PS; Coccidiosis--epidemiology--EP; Coccidiosis--immunology--IM; Feces--parasitology--PS; Fluorescent Antibody Technique, Indirect--veterinary--VE; Mice; **Neospora** --isolation and purification--IP; Prevalence; Texas--epidemiology--EP; Toxoplasmosis, Animal--immunology--IM

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19960829

Record Date Completed: 19960829

8/9/6

DIALOG(R) File 155:MEDLINE(R)

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10426253 96232677 PMID: 8669764

Serologic responses of cattle and other animals infected with Neospora caninum.

Dubey J P; Lindsay D S ; Adams D S; Gay J M; Baszler T V; Blagburn B L ; Thulliez P

USDA, Livestock and Poultry Sciences Institute, Parasite Biology and Epidemiology Laboratory, Beltsville, MD 20705, USA.

American journal of veterinary research (UNITED STATES) Mar 1996, 57 (3) p329-36, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

OBJECTIVE--To examine cross-reactivity among **Neospora caninum** and closely-related apicomplexans. DESIGN--Sera from animals were examined for antibody production to **N. caninum** and cross-reactivity to **Toxoplasma gondii**. ANIMALS--Cattle were experimentally infected with 3 tissue cyst-forming protozoan parasites **N. caninum**, **T. gondii**, and **Sarcocystis** sp, and calves

were monospecifically inoculated with the intestinal coccidia, Eimeria bovis and Cryptosporidium parvum. Similar studies were done in laboratory rabbits inoculated with N caninum, T gondii, Hammondia hammondi, and Sarcocystis sp. Additionally, sera were obtained from ewes, lambs, goats, sows, cats, rats, and mice inoculated with N caninum tachyzoites. PROCEDURE--The indirect fluorescent antibody (IFA) and ELISA antibody tests (cattle only) were used to examine reactivity to N caninum; the modified direct agglutination, Sabin-Feldman dye, and IFA tests were used to evaluate reactivity to T gondii. RESULTS--Serologic cross-reactivity among N caninum, T gondii, and Sarcocystis sp was none or minimal by the IFA test. There was some reactivity to N caninum by the use of ELISA in cattle inoculated with Sarcocystis sp. CONCLUSIONS--The IFA test for N caninum was specific for the diagnosis of neosporosis in animals.

Tags: Animal; Female; Human

Descriptors: Coccidiosis--immunology--IM; * Neospora ; *Protozoan Infections--immunology--IM; Antibodies, Protozoan--blood--BL; Antibody Formation; Cats; Cattle; Cell Line; Cercopithecus aethiops; Coccidiosis --blood--BL; Cross Reactions; Cryptosporidium parvum--immunology--IM; Eimeria--immunology--IM; Enzyme-Linked Immunosorbent Assay; Goats; Mice; Neospora --immunology--IM; Protozoan Infections--blood--BL; Rabbits; Rats; Sheep; Species Specificity; Swine; Vero Cells

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19960806

Record Date Completed: 19960806

8/9/7

DIALOG(R) File 155:MEDLINE(R)

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10331836 96134136 PMID: 8567387

Neosporosis-associated abortion in a dairy goat.

Dubey J P; Morales J A; Villalobos P; Lindsay D S ; Blagburn B L ; Topper M J

Parasite Biology and Epidemiology Laboratory, USDA, Beltsville, MD 20705-2350, USA.

Journal of the American Veterinary Medical Association (UNITED STATES) Jan 15 1996, 208 (2) p263-5, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora canium tachyzoites and tissue cysts were found in tissues of a goat fetus aborted after 3.5 months of gestation. The fetus had hydrocephalus and a hypoplastic cerebellum. The predominant lesion in the fetus was severe encephalitis associated with numerous N canium tissue cysts. Parasites in fetal tissues reacted positively with N caninum antibodies in immunohistochemical tests. The doe was clinically normal and had a 1:800 antibody titer to N caninum as determined by use of an indirect fluorescent antibody test 9 months after abortion. Five of 77 other does from this herd also had indirect fluorescent antibody titers to N caninum that were > or = 1:100.

Tags: Animal; Case Report; Female; Male; Pregnancy

Descriptors: Abortion, Veterinary--parasitology--PS; *Coccidiosis --veterinary--VE; *Fetus--parasitology--PS; *Goat Diseases--parasitology --PS; * Neospora --isolation and purification--IP; Antibodies, Protozoan --blood--BL; Antibodies, Protozoan--diagnostic use--DU; Coccidiosis --parasitology--PS; Fetus--pathology--PA; Fluorescent Antibody Technique, Indirect--veterinary--VE; Goats; Immunohistochemistry; Neospora --immunology--IM

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19960307

Record Date Completed: 19960307

8/9/8

DIALOG(R) File 155:MEDLINE(R)

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10242210 96043576 PMID: 7472875

Experimental oral inoculations in birds to evaluate potential definitive hosts of *Neospora caninum*.

Baker D G; Morishita T Y; Brooks D L; Shen S K; **Lindsay D S** ; Dubey J P
Animal Resources Service, School of Veterinary Medicine, University of California, Davis 95616, USA.

Journal of parasitology (UNITED STATES) Oct 1995, 81 (5) p783-5,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Experimental oral inoculations to evaluate potential definitive hosts of *Neospora caninum* were conducted by feeding infected rodent tissues to 9 carnivorous birds of 4 species. Birds included 2 red-tailed hawks (*Buteo jamaicensis*), 2 turkey vultures (*Cathartes aura*), 2 barn owls (*Tyto alba*), and 3 American crows (*Corvus brachyrhynchus*). The rodents (mice or rats) had been inoculated with 100,000 culture-derived tachyzoites of *N. caninum* 1-6 mo before feeding to the birds. Fecal samples were collected from each bird daily for 1 mo after feeding rodents and examined for oocysts by fecal flotation. In addition, processed aliquots from all avian fecal samples were fed to BALB/c mice. Five weeks after feeding, mice were bled and sera were tested for antibodies against *N. caninum*. One to two months later, mice were killed and brain tissue was examined microscopically for protozoal cysts. While occasional oocysts were found in avian fecal samples, these were likely not *N. caninum* because they were not infective to BALB/c mice. It was concluded that the bird species tested are not likely to be definitive hosts of *N. caninum*.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: Bird Diseases--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* --pathogenicity--PY; Birds--parasitology--PS; Coccidiosis--parasitology--PS; Feces--parasitology--PS; Mice; *Neospora* --isolation and purification--IP; Parasite Egg Count; Rats

Record Date Created: 19951130

Record Date Completed: 19951130

8/9/9

DIALOG(R) File 155:MEDLINE(R)

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10242198 96043564 PMID: 7472863

Vertical transmission of *Neospora caninum* in mice.

Cole R A; **Lindsay D S** ; **Blagburn B L** ; Dubey J P
Department of Pathobiology, College of Veterinary Medicine, Auburn University, Alabama 36849, USA.

Journal of parasitology (UNITED STATES) Oct 1995, 81 (5) p730-2,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Herein we report a murine model to examine transplacental transmission, transmammary transmission, or both, of *Neospora caninum*. Prevalence of transplacental transmission in outbred Swiss-Webster mouse pups was 85%, with 11 of 13 litters containing at least 1 transplacentally infected pup. Sixty-two percent of litters born to experimentally infected dams contained 85% or more transplacentally infected pups. Numbers of pups congenitally infected per litter was higher if dams were inoculated during the first half of pregnancy. Transplacental transmission decreased to 25% when a singly infected dam delivered a second litter. Transmammary transmission was observed in 1 of 51 pups suckling dams experimentally infected 5, 10, or 15 days postparturition. No pups were infected when cross-fostered onto chronically infected dams.

Tags: Animal; Female; Pregnancy; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--transmission--TM; *Disease Transmission,

Vertical; * **Neospora** ; Brain--parasitology--PS; Liver--parasitology--PS; Mice

Record Date Created: 19951130

Record Date Completed: 19951130

8/9/10

DIALOG(R) File 155:MEDLINE(R)

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10237767 96039091 PMID: 7486395

Abortions, fetal death, and stillbirths in pregnant pygmy goats inoculated with tachyzoites of Neospora caninum.

Lindsay D S ; Rippey N S; Powe T A; Sartin E A; Dubey J P; Blagburn B L
Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849, USA.

American journal of veterinary research (UNITED STATES) Sep 1995, 56

(9) p1176-80, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum-induced abortion is a major production problem in the dairy cattle industry in the United States and worldwide. Abortions attributable to naturally acquired N caninum infection also have been observed in pygmy goats. We studied experimentally induced infections with N caninum in pregnant pygmy does to determine whether abortions attributable to N caninum infection would occur after inoculation. Seven pregnant pygmy does (1 control doe and 6 inoculated with N caninum) were studied. The control doe remained clinically normal throughout the study and delivered 2 healthy kids. Abortion, fetal death, and stillbirths were observed in some pregnant does inoculated with N caninum. Two pregnant pygmy does inoculated with N caninum early in gestation (day 51) had fetuses that died and were aborted, or died and were reabsorbed. **Neospora** caninum tachyzoites and lesions were observed in the brain, spinal cord, and heart of aborted fetuses; parasites also were isolated from the placenta. Four additional pregnant pygmy does (2 inoculated at mid-gestation [day 85], and 2 at late gestation [day 127]) did not abort after inoculation. However, 1 doe inoculated during mid-gestation delivered a stillborn fetus that had died about 1 week prior to parturition. This kid was congenitally infected with N caninum. **Neospora** caninum was isolated from the placentas of all inoculated does examined. Neonatal neosporosis was not observed in live-born kids, nor were stages of N caninum isolated from any live-born kid. Does did not undergo abortion or have congenitally infected kids when they were rebred and evaluated for neosporosis.

Tags: Animal; Female; Human; Male; Pregnancy; Support, Non-U.S. Gov't

Descriptors: Abortion, Veterinary; *Brain--parasitology--PS; *Coccidiosis; *Fetal Death--veterinary--VE; * **Neospora** ; *Pregnancy Complications, Parasitic--physiopathology--PP; Antibodies, Protozoan--blood--BL; Cattle; Cell Line; Coccidiosis--immunology--IM; Fibroblasts; Fluorescent Antibody Technique, Indirect; Gestational Age; Goats; Immunoglobulin G--blood--BL; Immunoglobulin M--blood--BL; **Neospora** --growth and development--GD; Pregnancy Complications, Parasitic--immunology--IM; Skin

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Immunoglobulin G); 0 (Immunoglobulin M)

Record Date Created: 19951207

Record Date Completed: 19951207

8/9/11

DIALOG(R) File 155:MEDLINE(R)

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08534124 95222422 PMID: 7707216

Mouse model for central nervous system Neospora caninum infections.

Lindsay D S ; Lenz S D; Cole R A; Dubey J P; Blagburn B L
Department of Pathobiology, College of Veterinary Medicine, Auburn University, Alabama 36849-5519, USA.

Journal of parasitology (UNITED STATES) Apr 1995, 81 (2) p313-5,
ISSN 0022-3395 Journal Code: 7803124
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Neospora caninum is a protozoan parasite that causes severe disease in transplacentally infected dogs and abortions in domestic ruminants. Rodent models of neosporosis rely on treatment of hosts with methylprednisolone acetate (MPA) to enhance infections. The present study reports the development of an inbred BALB/c mouse model that results in central nervous system neosporosis in the absence of MPA treatment. Seven of 12 BALB/c mice died 26-70 days after subcutaneous (s.c.) inoculation with tachyzoites of the NC-1 strain of *N. caninum*, and none of 12 BALB/c mice died after s.c. inoculation with tachyzoites of the NC-3 strain. None of 8 HSD:ICR mice (4 mice, NC-1 strain; 4 mice, NC-3 strain) developed clinical neosporosis or died after s.c. inoculation with tachyzoites. Control BALB/c (2) and HSD:ICR (2) mice s.c. inoculated with Hanks' balanced salt solution did not develop clinical signs of disease. Some mice in all *N. caninum*-inoculated groups had brain lesions, but significantly ($P < 0.05$) more BALB/c mice inoculated with the NC-1 strain had brain lesions.

Tags: Animal; Female; Support, Non-U.S. Gov't
Descriptors: Brain Diseases--parasitology--PS; *Coccidiosis--parasitology--PS; *Disease Models, Animal; *Mice, Inbred BALB C; * **Neospora** --physiology--PH; Brain--parasitology--PS; Brain--pathology--PA; Mice
Record Date Created: 19950509
Record Date Completed: 19950509

8/9/12

DIALOG(R) File 155:MEDLINE(R)

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08534103 95222401 PMID: 7707195

Vertical transmission of Neospora caninum in dogs.

Cole R A; Lindsay D S ; Blagburn B L ; Sorjonen D C; Dubey J P
Department of Pathobiology, College of Veterinary Medicine, Auburn University, Alabama 36849, USA.

Journal of parasitology (UNITED STATES) Apr 1995, 81 (2) p208-11,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Herein we report the development of a canine model to examine transplacental and/or transmammary transmission of **Neospora caninum**. Six pregnant bitches were experimentally infected with *N. caninum* on day 21 of gestation. One bitch successfully delivered a litter of 3 live pups. These pups showed slight proprioception deficits, increased muscle tone, and spasticity in both pelvic limbs; however, *N. caninum* was neither demonstrated by bioassay in cell culture nor seen in histological sections of tissues from these pups. The remaining 5 bitches aborted. **Neospora caninum** was isolated from tissues of 4 of the experimentally infected bitches and pups from 2 of the miscarried litters. Experimental infections of 2 litters of 5-day-old nursing pups produced variable results. **Neospora caninum** was isolated from 2 of 2 inoculated pups in 1 litter and 3 of 6 inoculated pups in the second litter.

Tags: Animal; Female; Pregnancy; Support, Non-U.S. Gov't
Descriptors: Coccidiosis--transmission--TM; *Disease Transmission, Vertical; * **Neospora** ; *Pregnancy Complications, Parasitic; Animals, Newborn; Antibodies, Protozoan--blood--BL; Coccidiosis--congenital--CN; Coccidiosis--immunology--IM; Disease Models, Animal; Dogs; Fetal Death --etiology--ET; Fetal Resorption--etiology--ET; **Neospora** --immunology--IM; Pregnancy Complications, Parasitic--immunology--IM
CAS Registry No.: 0 (Antibodies, Protozoan)
Record Date Created: 19950509
Record Date Completed: 19950509

8/9/13

DIALOG(R) File 155:MEDLINE(R)

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08505625 95193901 PMID: 7887516

Characterization of a murine monoclonal antibody generated against Neospora caninum tachyzoites by use of western blot analysis and immunoelectron microscopy.

Cole R A; Lindsay D S ; Dubey J P; Toivio-Kinnucan M A; Blagburn B L
Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849.

American journal of veterinary research (UNITED STATES) Dec 1994, 55
(12) p1717-22, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A murine monoclonal antibody (MAB) 6G7 generated against tachyzoites of **Neospora caninum** recognized 8 major and several minor antigens, as observed by western blot analysis. Relative rate of migration of the 8 major antigens ranged from 31 to 97.4 kd. In addition, MAB 6G7 recognized a *Toxoplasma gondii* tachyzoite antigen with a relative rate of migration of 107 kd. Immunogold labeling of *N. caninum* tachyzoites grown in human foreskin fibroblast cells indicated that MAB 6G7 binds to micronemes, dense granules, basal portions of rhoptries, and intravacuolar tubules within the parasitophorous vacuole. Monoclonal antibody 6G7 also bound to micronemes and basal portions of rhoptries within tachyzoites of *T. gondii*. Monoclonal antibody 6G7 did not significantly inhibit development of tachyzoites in vitro.

Tags: Animal; Human; Support, Non-U.S. Gov't

Descriptors: Antibodies, Monoclonal--immunology--IM; *Antibodies, Protozoan--immunology--IM; * **Neospora** --immunology--IM; Antibodies, Monoclonal--biosynthesis--BI; Antibodies, Protozoan--biosynthesis--BI; Blotting, Western; Cells, Cultured; Mice; Microscopy, Immunoelectron; **Neospora** --growth and development--GD

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antibodies, Protozoan)

Record Date Created: 19950413

Record Date Completed: 19950413

8/9/14

DIALOG(R) File 155:MEDLINE(R)

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08381352 95069326 PMID: 7978638

Examination of the activities of 43 chemotherapeutic agents against Neospora caninum tachyzoites in cultured cells.

Lindsay D S ; Rippey N S; Cole R A; Parsons L C; Dubey J P; Tidwell R R; Blagburn B L

Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849-5519.

American journal of veterinary research (UNITED STATES) Jul 1994, 55
(7) p976-81, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum causes serious disease in dogs, and it, or a similar parasite, is a major cause of abortion in cattle. Little is known about the susceptibility of this protozoan to antimicrobial agents. We studied several antimicrobial agents to determine which classes might have activity against this parasite. We also determined whether activity of such agents was coccidiocidal or coccidiostatic. A 2-day of treatment, monoclonal antibody-based enzyme immunoassay and a 5-day of treatment, cell culture

flask (CCF), lesion-based assay were developed to examine the ability of test agents to inhibit tachyzoite multiplication. Seven sulfonamides were examined, with the following activities observed: sulfathiazole > or = sulfamethoxazole > sulfadiazine > sulfaquinoxaline > or = sulfamethazine > sulfadimethoxine > sulfamerazine. Dapsone, a sulfone, had little activity. Six dihydrofolate reductase/thymidylate synthase inhibitors were examined, with the following activities observed: piritrexim > pyrimethamine > ormetoprim > trimethoprim = diaveridine > methotrexate. Six ionophorous antibiotics were examined; lasalocid, maduramicin, monensin, narasin, and salinomycin had equivalent activities, but alborixin was toxic for host cells at the lowest concentration examined. Three macrolide antibiotics--azithromycin, clarithromycin, and erythromycin--were examined and had equivalent activities. Two tetracycline antibiotics, doxycycline and minocycline, were examined and had equivalent activities. Three lincosamide antibiotics were examined, with the following activities observed: clindamycin hydrochloride > clindamycin phosphate > lincomycin hydrochloride. Pentamidine and 6 of its analogs were examined, and only hexamidine and 1,4-Di[4-(2-imidazoliny1)-2-methoxy-phenoxy]butane had activity. Eight miscellaneous antiprotozoal agents were examined for activity. Amprolium, metronidazole, paromomycin, and roxarsone had little activity. (ABSTRACT TRUNCATED AT 250 WORDS)

Tags: Animal; Human; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiostats--pharmacology--PD; * **Neospora** --drug effects --DE; Antibiotics, Macrolide--pharmacology--PD; Antiprotozoal Agents --pharmacology--PD; Cattle; Cells, Cultured; Dogs; Drug Evaluation, Preclinical--veterinary--VE; Fibroblasts; Skin; Sulfonamides--pharmacology --PD; Tetracyclines--pharmacology--PD

CAS Registry No.: 0 (Antibiotics, Macrolide); 0 (Antiprotozoal Agents) ; 0 (Coccidiostats); 0 (Sulfonamides); 0 (Tetracyclines)

Record Date Created: 19941201

Record Date Completed: 19941201

8/9/15

DIALOG(R) File 155:MEDLINE(R)

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08048882 94114619 PMID: 8286458

Detection of *Neospora caninum* in tissue sections using a murine monoclonal antibody.

Cole R A; Lindsay D S ; Dubey J P; Blagburn B L

Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849-5519.

Journal of veterinary diagnostic investigation - official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc (UNITED STATES) Oct 1993, 5 (4) p579-84, ISSN 1040-6387

Journal Code: 9011490

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A murine monoclonal antibody (MAb 6G7), isotype IgG2a, produced against tachyzoites of *Neospora caninum* (isolate NC-1) reacted specifically with tachyzoites of *N. caninum* in an indirect immunofluorescent antibody test. MAb 6G7 did not react with tachyzoites of *Toxoplasma gondii*, sporozoites of *Isospora suis*, *Eimeria bovis*, or *E. tenella*, or merozoites of *E. bovis* in the indirect immunofluorescent antibody test. MAb 6G7 reacted positively with both tachyzoites and bradyzoites of *N. caninum* in an avidin-biotin peroxidase complex immunohistochemical test on formalin-fixed paraffin-embedded tissues. No reaction was observed with the following: tachyzoites and bradyzoites of *T. gondii*, *T. gondii*-like parasites, or *Hammondia hammondi*; bradyzoites of *Frenkelia microti*; schizonts and merozoites of *Sarcocystis*-like organisms; schizonts, sarcocysts, and oocysts/sporocysts of *S. cruzi*; schizonts and merozoites of *S. canis*; schizonts of *S. hirsuta*, *S. tenella*, and *S. capracanis*; merozoites of *S. neurona* and *S. neurona*-like organisms, *E. bovis*, or *Haemoproteus* sp.; bradyzoites and merozoites of *S. montanaensis*; bradyzoites of *S. odocoileocanis*, *S. cruzi*, and *S. tenella*; meronts, sexual stages, and

caryocysts of *Caryospora* sp. and *C. bigenetica*; micromerozoites, macromerozoites, and schizonts of *Hepatozoon canis*; sporozoites, sexual stages, and oocysts of *Cryptosporidium parvum* and *C. baileyi*; trophozoites of *Monocystis lumbrici*, *Tritrichomonas foetus*, and *Balantidium coli*; tissue cysts and bradyzoites of *Besnoitia* sp. and *B. jellisoni*; amastigotes of *Leishmania* sp.; and trophic theronts of *Ichthyophthirius multifiliis*. MAb 6G7 reacted with tachyzoites and bradyzoites of *N. caninum* in natural and experimental infections in dogs, cattle, mice, rats, sheep, and goats, indicating that host origin of the tissues did not affect the performance of the test.

Tags: Animal; Female; Human; Male; Support, Non-U.S. Gov't

Descriptors: *Antibodies, Monoclonal; *Mycoses--veterinary--VE; *Neurospora--isolation and purification--IP; Cell Line; Fluorescent Antibody Technique; Immunoglobulin G; Immunohistochemistry; Mice; Mice, Inbred BALB C--immunology--IM; Mycoses--diagnosis--DI

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Immunoglobulin G)

Record Date Created: 19940218

Record Date Completed: 19940218

8/9/16

DIALOG(R) File 155:MEDLINE(R)

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07696281 93151531 PMID: 8427452

Use of infected cultured cells to compare ultrastructural features of *Neospora caninum* from dogs and *Toxoplasma gondii*.

Lindsay D S ; Speer C A; Toivio-Kinnucan M A; Dubey J P; Blagburn B L
Department of Pathobiology, College of Veterinary Medicine, Auburn University, AL 36849-5519.

American journal of veterinary research (UNITED STATES) Jan 1993, 54
(1) p103-6, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

The ultrastructure of tachyzoites of 3 isolates of *Neospora caninum* from dogs was examined, using transmission electron microscopy of infected cultured cells. Ultrastructure of the 3 isolates was similar. Tachyzoites had a pellicle, 22 subpellicular microtubules, a conoid, anterior and posterior polar rings, 8 to 12 electron-dense rhoptries, numerous micronemes, a single vesicular nucleus, tubular mitochondria, Golgi complexes, ribosomes, endoplasmic reticula, an inactive micropore, electron-dense bodies, lipid bodies, and amylopectin bodies. Most tachyzoites were located adjacent to the host cell nucleus in a parasitophorous vacuole that contained numerous intravacuolar tubules. Tachyzoites divided by endodyogeny. *Neospora caninum* tissue cysts were not seen. Comparison of *N. caninum* with *Toxoplasma gondii* tachyzoites indicated that the 2 species can be differentiated on the basis of structure and numbers of rhoptries and numbers and location of micronemes and electron-dense bodies.

Tags: Animal; Comparative Study; Human; Support, Non-U.S. Gov't

Descriptors: *Apicomplexa--ultrastructure--UL; *Dogs--parasitology--PS; *Toxoplasma--ultrastructure--UL; Cattle; Cells, Cultured

Record Date Created: 19930302

Record Date Completed: 19930302

8/9/17

DIALOG(R) File 155:MEDLINE(R)

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07677489 93132737 PMID: 1484374

***Neospora caninum* infection in English Springer Spaniel littermates. Diagnostic evaluation and organism isolation.**

Cuddon P; Lin D S; Bowman D D; Lindsay D S; Miller T K; Duncan I D; deLahunta A; Cummings J; Suter M; Cooper B; et al

Department of Medical Sciences, School of Veterinary Medicine, University

of Wisconsin-Madison.

Journal of veterinary internal medicine / American College of Veterinary
Internal Medicine (UNITED STATES) Nov-Dec 1992, 6 (6) p325-32, ISSN
0891-6640 Journal Code: 8708660
Contract/Grant No.: 144Z279; PHS
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Progressive paraparesis developed in four male English Springer Spaniel
pups from a litter of five during the first 10 weeks of life. Two of the
pups, which had the earliest onset of neurologic signs, were euthanatized
without further workup. However, a detailed investigation was completed on
the remaining two littermates at 12 weeks of age. Both pups had progressive
paraparesis for 3 to 4 weeks before presentation, with one dog developing
subsequent asymmetric pelvic limb extensor rigidity. Based on results from
neurologic examination, cerebrospinal fluid (CSF) analysis,
electrophysiology, and muscle/nerve biopsy, a presumptive diagnosis of
protozoal polyradiculitis and polymyositis was made. Necropsy of the most
severely affected pup confirmed the clinical diagnosis of inflammatory
nerve root and muscle disease but no organisms were found. To increase the
potential yield of organisms, the second pup was placed on
immunosuppressive doses of corticosteroids and euthanatized 2 weeks later.
Numerous organisms were found in lesions in muscle and the central nervous
system. Organisms grew in tissue culture and were isolated from the
peritoneal fluid of gerbils inoculated with infected tissue. Organisms were
not isolated from inoculated mice, guinea pigs, rabbits, and hamsters. No
parasites were seen in feces or tissues of three cats fed infected dog
tissues. Serologic testing demonstrated a strong positive titer to
Neospora caninum in both pups, and electron microscopy showed the
characteristic morphology of this parasite.

Tags: Animal; Case Report; Male; Support, Non-U.S. Gov't; Support, U.S.
Gov't, P.H.S.

Descriptors: *Apicomplexa; *Dog Diseases--diagnosis--DI; *Dog Diseases
--parasitology--PS; *Protozoan Infections, Animal; Apicomplexa--isolation
and purification--IP; Dogs; Electromyography; Gerbillinae; Neurons
--parasitology--PS; Neurons--pathology--PA; Peritoneal Cavity
--parasitology--PS; Polymyositis--parasitology--PS; Polymyositis--veterina
ry--VE; Polyradiculopathy--parasitology--PS; Polyradiculopathy--veterinary
--VE; Protozoan Infections--diagnosis--DI

Record Date Created: 19930216

Record Date Completed: 19930216

8/9/18

DIALOG(R) File 155:MEDLINE(R)

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07647409 93102609 PMID: 1281590

**Development and characterization of monoclonal antibodies to
first-generation merozoites of Eimeria bovis.**

Haeber P J; Lindsay D S ; Blagburn B L

Department of Pathobiology, College of Veterinary Medicine, Auburn
University, AL 36849-5519.

Veterinary parasitology (NETHERLANDS) Oct 1992, 44 (3-4) p321-7,
ISSN 0304-4017 Journal Code: 7602745

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Merozoites of Eimeria bovis were harvested from bovine monocyte cell
cultures and used to immunize BALB/C mice. Spleens from immunized mice were
removed and the cells fused with mouse myeloma cells. Supernates from
resulting hybridoma cell lines were examined for antibodies to
first-generation E. bovis merozoites using an indirect immunofluorescent
antibody (IFA) assay. Three positive cell lines were identified and cloned
by limiting dilution. All three cell lines produced immunoglobulins of the

IgG1 isotype that recognized antigens in the anterior half to two-thirds of the merozoites. Specificity of the monoclonal antibodies was examined with the IFA assay against sporozoites of *E. bovis*, sporozoites and merozoites of *Eimeria papillata* from mice and *Eimeria tenella* from chickens, sporozoites of *Isospora suis* from pigs, and tachyzoites of *Toxoplasma gondii* and *Neospora caninum* from cell cultures. Monoclonal antibodies from the three clones reacted with the anterior end of *E. bovis* sporozoites, but did not react with the other parasites examined. None of the monoclonal antibodies reacted with merozoite antigens in immunoblots.

Tags: Animal; Male; Support, Non-U.S. Gov't

Descriptors: *Antibodies, Monoclonal--biosynthesis--BI; *Antibodies, Protozoan--biosynthesis--BI; *Eimeria--immunology--IM; Antibodies, Monoclonal--immunology--IM; Antibodies, Protozoan--immunology--IM; Antibody Specificity; Antigens, Protozoan--immunology--IM; Cattle; Cattle Diseases--immunology--IM; Coccidiosis--immunology--IM; Coccidiosis--veterinary--VE; Cross Reactions; Epitopes--immunology--IM; Fluorescent Antibody Technique; Hybridomas; Immunoblotting; Immunodiffusion; Mice

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan); 0 (Epitopes)

Record Date Created: 19930115

Record Date Completed: 19930115

8/9/19

DIALOG(R) File 155:MEDLINE(R)

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07560252 93015176 PMID: 1399772

Induced transplacental transmission of *Neospora caninum* in cattle.

Dubey J P; Lindsay D S; Anderson M L; Davis S W; Shen S K

Zoonotic Diseases Laboratory, Livestock and Poultry Sciences Institute, Agricultural Research Service, US Department of Agriculture, Beltsville, MD 20705-2350.

Journal of the American Veterinary Medical Association (UNITED STATES)

Sep 1 1992, 201 (5) p709-13, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Three Jersey cows were inoculated SC and IM with 26 million *Neospora caninum* tachyzoites at 129 (cow 1), 126 (cow 2), and 81 (cow 3) days after mating. Cows remained clinically normal for at least 1 month after inoculation of *N caninum*. Cow 1 was euthanatized 32 days after inoculation because of gangrenous mastitis. Cow 1 had a live fetus with no gross lesions; however, microscopic lesions were seen in the fetus and consisted of severe nonsuppurative necrotizing encephalitis of the cerebral white matter. *Neospora caninum* was identified in lesions by staining with anti-*N caninum* serum in an immunohistochemical test, by bioassays in mice, and by inoculation of bovine monocyte cultures with fetal tissue homogenate. Neither *N caninum* nor lesions were associated with infection with the protozoan identified in tissues of cow 1. Cows 2 and 3 aborted small autolysed fetuses 101 and 74 days, respectively, after inoculation with *N caninum*; the fetuses and attached placenta were unsuitable for laboratory investigations. Cows 2 and 3 remained clinically normal 4 months after abortion. Results of this study indicated that *N caninum* can be transmitted transplacentally in cattle.

Tags: Animal; Female; Pregnancy

Descriptors: *Apicomplexa; *Cattle Diseases--transmission--TM; *Fetal Diseases--veterinary--VE; *Pregnancy Complications, Parasitic--veterinary--VE; *Protozoan Infections, Animal; Abortion, Veterinary--pathology--PA; Apicomplexa--isolation and purification--IP; Biological Assay; Brain--parasitology--PS; Brain--pathology--PA; Cattle; Cattle Diseases--pathology--PA; Fetal Diseases--pathology--PA; Fetus--parasitology--PS; Fetus--pathology--PA; Mice; Mice, Inbred BALB C; Placenta--pathology--PA; Pregnancy Complications, Parasitic--pathology--PA; Protozoan Infections--pathology--PA; Protozoan Infections--transmission--TM

Record Date Created: 19921028

Record Date Completed: 19921028

8/9/20

DIALOG(R)File 155:MEDLINE(R)

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07285886 92148610 PMID: 1738071

Factors affecting the survival of Neospora caninum bradyzoites in murine tissues.

Lindsay D S ; Blagburn B L ; Dubey J P

Department of Pathobiology, College of Veterinary Medicine, Auburn University, Alabama 36849-5519.

Journal of parasitology (UNITED STATES) Feb 1992, 78 (1) p70-2,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Studies were conducted to determine factors that influence the survival of bradyzoites of *Neospora caninum* within tissue cysts in the brains of experimentally inoculated mice. Viable tissue cysts were detected in the brains of mice inoculated 13 mo previously with either of 2 isolates (NC-1 or NC-2) of *N. caninum*. Bradyzoites within tissue cysts of the NC-2 isolate survived for at least 14 days at 4 C in refrigerated brain homogenates. Bradyzoites within tissue cysts of the NC-2 isolate also survived in the intact brain of a mouse carcass refrigerated at 4 C for 7 days. Bradyzoites within tissue cysts of the NC-3 isolate were killed by freezing at -20 C for 1 day.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: *Apicomplexa--physiology--PH; *Brain--parasitology--PS;
*Protozoan Infections--parasitology--PS; Antibodies, Protozoan--blood--BL;
Apicomplexa--immunology--IM; Cold; Freezing; Mice

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19920317

Record Date Completed: 19920317

8/9/21

DIALOG(R)File 155:MEDLINE(R)

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07002053 91242757 PMID: 2094452

Neospora caninum induced abortion in sheep.

Dubey J P; Lindsay D S

Zoonotic Diseases Laboratory, Livestock and Poultry Sciences Institute, BARC-East, ARS, USDA, Beltsville, MD 20705.

Journal of veterinary diagnostic investigation - official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc (UNITED STATES) Jul 1990, 2 (3) p230-3, ISSN 1040-6387
Journal Code: 9011490

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal; Female; Pregnancy

Descriptors: *Abortion, Veterinary--parasitology--PS; *Protozoan Infections, Animal; *Sheep Diseases--parasitology--PS; Abortion, Veterinary --diagnosis--DI; Abortion, Veterinary--pathology--PA; Brain--parasitology --PS; Brain--pathology--PA; Muscles--parasitology--PS; Muscles--pathology --PA; Placenta--pathology--PA; Protozoa--isolation and purification--IP; Protozoan Infections--diagnosis--DI; Protozoan Infections--parasitology --PS; Protozoan Infections--pathology--PA; Sheep; Sheep Diseases --diagnosis--DI; Sheep Diseases--pathology--PA

Record Date Created: 19910702

Record Date Completed: 19910702

8/9/22

DIALOG(R) File 155:MEDLINE(R)

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06974639 91215140 PMID: 2090271

Neospora caninum-associated myocarditis and encephalitis in an aborted calf.

Dubey J P; Miller S; Lindsay D S ; Topper M J

Zoonotic Diseases Laboratory, ARS, USDA, Beltsville, MD 20705.

Journal of veterinary diagnostic investigation - official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc (UNITED STATES) Jan 1990, 2 (1) p66-9, ISSN 1040-6387 Journal Code: 9011490

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal; Case Report; Female; Pregnancy

Descriptors: *Cattle Diseases--pathology--PA; *Encephalitis--veterinary--VE; *Fetal Diseases--veterinary--VE; *Myocarditis--veterinary--VE; *Protozoan Infections, Animal; Abortion, Veterinary--pathology--PA; Cattle; Encephalitis--pathology--PA; Fetal Diseases--pathology--PA; Microscopy, Electron; Myocarditis--pathology--PA; Protozoa--isolation and purification--IP; Protozoa--ultrastructure--UL; Protozoan Infections--pathology--PA

Record Date Created: 19910531

Record Date Completed: 19910531

8/9/23

DIALOG(R) File 155:MEDLINE(R)

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06816044 91055985 PMID: 2243037

Congenital Neospora caninum infection in a calf with spinal cord anomaly.

Dubey J P; Hartley W J; Lindsay D S

Zoonotic Diseases Laboratory, Agricultural Research Institute, USDA, Beltsville, MD 20705.

Journal of the American Veterinary Medical Association (UNITED STATES) Oct 15 1990, 197 (8) p1043-4, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum was identified in a calf with spinal cord anomaly in Australia. The calf was full-term and born dead. The caudal cervical and cranial thoracic segments of the spinal cord of the calf were asymmetric because of marked unilateral reduction of ventral gray matter and focal cavitation. Mild focal disseminated nonsuppurative encephalomyelitis was associated with *N caninum* tissue cysts. Tissue cysts were 16 to 35 microns X 10 to 27 microns, and the cyst walls were 1 to 3 microns thick. In an immunohistochemical test, the parasite stained with *N caninum* serum but not *T gondii* serum.

Tags: Animal; Case Report

Descriptors: *Cattle Diseases--congenital--CN; *Protozoan Infections, Animal; *Spinal Cord--abnormalities--AB; Cattle; Protozoan Infections--congenital--CN

Record Date Created: 19901231

Record Date Completed: 19901231

8/9/24

DIALOG(R) File 155:MEDLINE(R)

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06809584 91049302 PMID: 2238386

Neosporosis in cats.

Dubey J P; **Lindsay D S** ; Lipscomb T P
US Department of Agriculture, Agricultural Research Service, Beltsville,
MD.

Veterinary pathology (UNITED STATES) Sep 1990, 27 (5) p335-9, ISSN
0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six cats (Nos. 1-6) were inoculated intramuscularly with (1 x 10⁶) and orally (5 x 10⁵) tachyzoites of *Neospora* caninum. Three (Nos. 1-3) of the six cats were given 40 mg/kg methylprednisolone acetate 7 days before and on the day of inoculation with *N. caninum* tachyzoites, and three cats (Nos. 4-6) were not given methylprednisolone acetate. Two of the cats (cat Nos. 1 and 2) given methylprednisolone acetate died suddenly. Cat No. 1 died 8 days post-inoculation, and cat No. 2 died 16 days post-inoculation. Cat No. 3 was euthanatized 21 days post-inoculation. Cat No. 1 had lesions of gram-positive bacterial septicemia. Necrotizing encephalitis, myelitis, disseminated skeletal muscle necrosis, hepatic necrosis, interstitial pneumonia, and renal tubular necrosis were the main lesions in cat Nos. 2 and 3. The cats that were not given methylprednisolone acetate remained clinically normal except for slight weight loss in cat No. 6. All three of these cats were euthanatized 55 days post-inoculation. Mild myositis and encephalitis were noted on microscopic examination of tissues from these three cats. Neuromuscular lesions were not seen in six control cats (Nos. 7-12) not inoculated with *N. caninum* and euthanatized 21 or 22 days after administration of the first two doses of methylprednisolone acetate (40 mg/kg), given at a weekly interval.

Tags: Animal; Female; Male

Descriptors: *Cat Diseases--diagnosis--DI; *Protozoan Infections, Animal
; Adrenal Glands--pathology--PA; Brain--pathology--PA; Cat Diseases
--pathology--PA; Cats; Diagnosis, Differential; Kidney--pathology--PA; Lung
--pathology--PA; Muscles--pathology--PA; Necrosis; Protozoan Infections
--diagnosis--DI; Protozoan Infections--pathology--PA; Spinal Cord
--pathology--PA

Record Date Created: 19901212

Record Date Completed: 19901212

8/9/25

DIALOG(R) File 155:MEDLINE(R)

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06716211 90342229 PMID: 2382383

Neosporosis in dogs.

Dubey J P; **Lindsay D S**

U.S. Department of Agriculture, Livestock and Poultry Sciences Institute,
Beltsville, MD 20705.

Veterinary parasitology (NETHERLANDS) May 1990, 36 (1-2) p147-51,
ISSN 0304-4017 Journal Code: 7602745

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A bitch was inoculated subcutaneously and intramuscularly with *Neospora* caninum tachyzoites on Day 35 of pregnancy. Eight pups were born 28 days later. Five pups became ill and necropsies were performed before 20 days of age. Three pups and the bitch remained clinically normal for 7 weeks after parturition when they were intramuscularly injected with 40 mg kg⁻¹ methylprednisolone acetate weekly to activate chronic *N. caninum* infection. Necropsies were performed 48, 17, 18, and 18 days respectively after administration of corticosteroids. Hepatic necrosis, pneumonia, encephalomyelitis, and myonecrosis were the main changes seen in these dogs.

Tags: Animal; Female; Pregnancy

Descriptors: *Dog Diseases--pathology--PA; *Protozoan Infections, Animal
; Animals, Newborn; Dog Diseases--congenital--CN; Dogs; Liver--pathology

--PA; Lung--pathology--PA; Muscles--pathology--PA; Pregnancy Complications,
Infectious--veterinary--VE; Protozoan Infections--congenital--CN; Protozoa
n Infections--pathology--PA

Record Date Created: 19900912

Record Date Completed: 19900912

8/9/26

DIALOG(R) File 155:MEDLINE(R)

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06690991 90316887 PMID: 2370226

Diagnosis and treatment of Neospora caninum infection in a dog.

Hay W H; Shell L G; Lindsay D S ; Dubey J P

Virginia-Maryland Regional College of Veterinary Medicine, Department of
Small Animal Clinical Sciences, Virginia Polytechnic Institute and State
University, Blacksburg.

Journal of the American Veterinary Medical Association (UNITED STATES)

Jul 1 1990, 197 (1) p87-9, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum, a protozoan organism, caused extensor rigidity of the pelvic limbs in a 12-week-old dog. Diagnosis was based on results of muscle biopsy, neuroelectrodiagnostics, serotesting, and cell culture. Indirect fluorescent antibody (IFA) titer to *N. caninum* was 1:800 at time of admission and 1:3,200 after 4 and 6 weeks. A reciprocal IFA titer of 50 to *N. caninum* was also found in the CSF. Serotesting for *T. gondii* was negative. Treatment with clindamycin followed by sulfadiazine and trimethoprim did not change the pelvic limb extensor rigidity, but other signs of minor neurologic dysfunction improved.

Tags: Animal; Case Report; Male

Descriptors: *Dog Diseases--diagnosis--DI; *Protozoan Infections, Animal
; Antibodies, Protozoan--analysis--AN; Biopsy--veterinary--VE; Clindamycin
--therapeutic use--TU; Dog Diseases--drug therapy--DT; Dogs; Drug Therapy,
Combination; Electromyography; Hindlimb--physiopathology--PP; Muscles
--parasitology--PS; Muscles--physiopathology--PP; Protozoa--immunology--IM
; Protozoa--isolation and purification--IP; Protozoan Infections
--diagnosis--DI; Protozoan Infections--drug therapy--DT; Sulfadiazine
--therapeutic use--TU; Trimethoprim--therapeutic use--TU

CAS Registry No.: 0 (Antibodies, Protozoan); 18323-44-9 (Clindamycin)
; 68-35-9 (Sulfadiazine); 738-70-5 (Trimethoprim)

Record Date Created: 19900823

Record Date Completed: 19900823

8/9/27

DIALOG(R) File 155:MEDLINE(R)

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06690807 90316703 PMID: 2370115

Infection of mice with Neospora caninum (Protozoa: Apicomplexa) does not protect against challenge with Toxoplasma gondii.

Lindsay D S ; Blagburn B L ; Dubey J P

Department of Pathobiology, College of Veterinary Medicine, Auburn
University, Alabama 36849-5519.

Infection and immunity (UNITED STATES) Aug 1990, 58 (8) p2699-700,

ISSN 0019-9567 Journal Code: 0246127

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum and *Toxoplasma gondii* are structurally related protozoal parasites of mammals that may cause abortion and neonatal morbidity and mortality. Groups of mice were subcutaneously inoculated with 10(5) live zoites of the NC-1 or NC-3 isolates of *N. caninum* and

reinoculated with an identical number of live zoites 2 weeks later. Groups of mice which were injected subcutaneously with Hanks balanced salt solution served as controls. Three weeks after the final *N. caninum* inoculation, one-half of the mice were inoculated subcutaneously with 2.5×10^4 zoites of the RH isolate of *T. gondii* and the other half were inoculated subcutaneously with 2.5×10^4 zoites of the GT-1 isolate of *T. gondii*. Serum samples taken from mice on the day of *T. gondii* inoculation were negative for specific antibodies to *T. gondii*, but mice inoculated with *N. caninum* had reciprocal titers of greater than or equal to 800 to this protozoan. All of the mice died after challenge with *T. gondii*, and no significant differences (P greater than 0.05) between the survival times of mice inoculated with either isolate of *N. caninum* and those of control mice were seen. This study indicates that *N. caninum* and *T. gondii* are distinct biologic entities and not closely related isolates.

Tags: Animal; Female; Support, U.S. Gov't, Non-P.H.S.

Descriptors: *Immunization; *Protozoa--immunology--IM; *Toxoplasmosis, Animal--prevention and control--PC; Antibodies, Protozoan--immunology--IM; Cross Reactions; Mice; Survival Rate; Toxoplasmosis, Animal--immunology--IM; Toxoplasmosis, Animal--mortality--MO; Vaccines

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Vaccines)

Record Date Created: 19900821

Record Date Completed: 19900821

8/9/28

DIALOG(R) File 155:MEDLINE(R)

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06652937 90278626 PMID: 2112599

Infections in mice with tachyzoites and bradyzoites of *Neospora caninum* (Protozoa: Apicomplexa).

Lindsay D S ; Dubey J P

U. S. Department of Agriculture, Livestock and Poultry Sciences Institute, BARC-East, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Jun 1990, 76 (3) p410-3, ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tachyzoites of 2 isolates of *Neospora caninum* (NC-1 and NC-2) were inoculated subcutaneously (s.c.), intraperitoneally (i.p.), or orally into mice to compare the effects of route of inoculation on pathogenicity. Mice developed more severe disease, and disease occurred sooner when inoculated with the NC-1 isolate compared to the NC-2 isolate. Deaths occurred earlier in mice inoculated i.p. with either isolate. Mice inoculated orally or s.c. with tachyzoites responded similarly to infection. Tissue cysts of the NC-2 isolate produced infections in mice following oral or s.c. inoculation. Lesions seen in mice inoculated with tachyzoites or bradyzoites were primarily acute pneumonia, myositis, encephalitis, ganglioradiculoneuritis, and pancreatitis. In vitro studies demonstrated that tachyzoites of both isolates were killed by incubation in pepsin-HCl solution but not 1% trypsin solution. Bradyzoites of the NC-2 isolate were able to withstand treatment with pepsin-HCl solution.

Tags: Animal; Female

Descriptors: *Protozoan Infections--pathology--PA; Brain--parasitology--PS; Disease Models, Animal; Mice; Pepsin A--pharmacology--PD; Protozoa--drug effects--DE; Protozoan Infections--parasitology--PS; Trypsin--pharmacology--PD

Enzyme No.: EC 3.4.21.4 (Trypsin); EC 3.4.23.1 (Pepsin A)

Record Date Created: 19900716

Record Date Completed: 19900716

8/9/29

DIALOG(R) File 155:MEDLINE(R)

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06578910 90204186 PMID: 2319416

Effects of sulfadiazine and amprolium on Neospora caninum (Protozoa: Apicomplexa) infections in mice.

Lindsay D S ; Dubey J P

USDA, Zoonotic Diseases Laboratory, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Apr 1990, 76 (2) p177-9,

ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

An immunosuppressed mouse model was used to determine the effects of amprolium and sulfadiazine on experimental *Neospora caninum* infections. Both drugs were given in the drinking water. Neither drug was effective in treating infections when given 7 days after inoculation of tachyzoites, when clinical signs of disease had developed. Amprolium did not prevent deaths or development of clinical signs when given in the drinking water at 1 mg/ml or 5 mg/ml 3 days after inoculation of tachyzoites. Sulfadiazine in drinking water was not effective when given at 0.5 mg/ml but was effective in preventing deaths and clinical disease when given at 1 mg/ml 3 days after inoculation with tachyzoites. Most mice (6 of 10) treated for 3 days with 1 mg/ml sulfadiazine in drinking water developed encephalitis after drug treatment was stopped. Treatment for 14 days with 1 mg/ml sulfadiazine in drinking water was needed to protect 90% of inoculated mice.

Tags: Animal; Female

Descriptors: *Amprolium--therapeutic use--TU; *Protozoan Infections--drug therapy--DT; *Sulfadiazine--therapeutic use--TU; Acute Disease; Disease Models, Animal; Encephalitis--drug therapy--DT; Mice; Picolines; Pneumonia--drug therapy--DT

CAS Registry No.: 0 (Picolines); 137-88-2 (Amprolium); 68-35-9 (Sulfadiazine)

Record Date Created: 19900504

Record Date Completed: 19900504

8/9/30

DIALOG(R) File 155:MEDLINE(R)

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06520737 90145754 PMID: 2694869

Immunohistochemical diagnosis of Neospora caninum in tissue sections.

Lindsay D S ; Dubey J P

Zoonotic Diseases Laboratory, Beltsville, MD 20705.

American journal of veterinary research (UNITED STATES) Nov 1989, 50 (11) p1981-3, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

An avidin-biotin-peroxidase complex immunoperoxidase staining method was developed to detect *Neospora caninum* in formalin-fixed, paraffin-embedded tissue sections. Specific antiserum to *N caninum* was made in rabbits and used to probe tissues from dogs naturally and experimentally infected with *N caninum*. The test detected tachyzoites and bradyzoites of *N caninum*. A reaction was not observed to *Toxoplasma gondii*, *Hammondia hammondi*, *Sarcocystis cruzi*, *S capricanis*, *S tenella*, *Besnoitia jellisoni*, *Caryospora bigenetica*, *Hepatazoon canis*, *Atoxoplasma* sp, or the organism causing canine dermal coccidiosis. When antiserum made in rabbits to *T gondii* was used in the test, reaction to *N caninum* was not observed.

Tags: Animal

Descriptors: *Coccidia--isolation and purification--IP; *Coccidiosis--veterinary--VE; *Dog Diseases--parasitology--PS; Birds; Brain--parasitology--PS; Coccidiosis--parasitology--PS; Dogs; Immunoenzyme Techniques; Immunohistochemistry; Liver--parasitology--PS; Mice; Rats; Skin--parasitology--PS

Record Date Created: 19900306

Record Date Completed: 19900306

8/9/31

DIALOG(R) File 155:MEDLINE(R)

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06508319 90133281 PMID: 2299518

Fatal congenital Neospora caninum infection in a lamb.

Dubey J P; Hartley W J; **Lindsay D S** ; Topper M J

U.S. Department of Agriculture, Livestock and Poultry Sciences Institute, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Feb 1990, 76 (1) p127-30,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum tissue cysts were found in the brain and spinal cord of a 1-wk-old lamb that was unable to stand after birth. The lamb was originally diagnosed as having toxoplasmosis, but ultrastructural and immunohistochemical techniques used in the present study permitted a definitive diagnosis of **Neospora** caninum tissue cysts in the brain and spinal cord of this lamb. This is the first report of N. caninum in sheep.

Tags: Animal; Case Report

Descriptors: *Protozoa--isolation and purification--IP; *Protozoan Infections, Animal; *Sheep Diseases--congenital--CN; Brain--parasitology--PS; Immunohistochemistry; Microscopy, Electron; Protozoa--ultrastructure--UL; Protozoan Infections--congenital--CN; Protozoan Infections--diagnosis--DI; Sheep; Sheep Diseases--diagnosis--DI; Spinal Cord--parasitology--PS

Record Date Created: 19900315

Record Date Completed: 19900315

8/9/32

DIALOG(R) File 155:MEDLINE(R)

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06508310 90133272 PMID: 2614609

Evaluation of anti-coccidial drugs' inhibition of Neospora caninum development in cell cultures.

Lindsay D S ; Dubey J P

USDA, ARS, Livestock and Poultry Sciences Institute, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Dec 1989, 75 (6) p990-2,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Eight anti-coccidial drugs were examined for their efficacies in preventing development of **Neospora** caninum in bovine monocyte cell cultures. Lasalocid sodium (0.05 microgram/ml), monensin sodium (0.05 microgram/ml), piritrexim (0.01 microgram/ml), pyrimethamine (0.05 microgram/ml), and trimethoprim (5.0 micrograms/ml) were effective in preventing development of intracellular N. caninum tachyzoites (P less than 0.05). No differences (P greater than 0.05) in mean numbers of infected cells compared to controls were observed in cultures treated with amprolium hydrochloride (10.0 micrograms/ml), sulfadiazine (200.0 micrograms/ml), and sulfamethoxazole (200.0 micrograms/ml).

Tags: Animal

Descriptors: *Coccidiostats--pharmacology--PD; *Monocytes--parasitology--PS; *Protozoa--drug effects--DE; Cattle; Cells, Cultured; Dog Diseases--parasitology--PS; Dogs; Protozoa--growth and development--GD; Protozoan Infections--parasitology--PS; Protozoan Infections, Animal

CAS Registry No.: 0 (Coccidiostats)

Record Date Created: 19900314

Record Date Completed: 19900314

8/9/33

DIALOG(R) File 155:MEDLINE(R)

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06400106 90024541 PMID: 2802335

Transplacental Neospora caninum infection in dogs.

Dubey J P; Lindsay D S

Zoonotic Diseases Laboratory, USDA, Beltsville Agricultural Research Center-East, MD 20705.

American journal of veterinary research (UNITED STATES) Sep 1989, 50 (9) p1578-9, ISSN 0002-9645 Journal Code: 0375011

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A Beagle bitch was inoculated SC and IM with 1.5 million **Neospora caninum** tachyzoites on the 35th day of gestation. Eight pups were born alive 28 days after N caninum inoculation of the bitch. Pup 1 did not breathe and died while still enclosed in fetal membranes. Pup 2 died 2 days after birth (DAB). Pups 3, 4, and 5 were euthanatized on 2, 3, and 20 DAB, respectively, because they were hypothermic and not nursing. Pups 6, 7, and 8 remained clinically normal. Indirect fluorescent N caninum serum antibody titers were: less than 50 (pups 1 and 8 at 17 DAB, and the bitch before inoculation), 50 (pups 2 and 3 on 2 DAB), 200 (pups 6 and 7 on 17 DAB), and 800 (bitch on day 17 after parturition). **Neospora caninum** was recovered in cultured cells inoculated with placenta and tissues from all 5 pups necropsied, and N caninum was seen in histologic sections of the heart of pup 5. Results indicate that N caninum can be transplacentally transmitted in dogs.

Tags: Animal; Female; Pregnancy

Descriptors: *Dog Diseases--congenital--CN; *Placenta--parasitology--PS; *Protozoan Infections, Animal; Dog Diseases--transmission--TM; Dogs; Pregnancy Complications, Infectious--veterinary--VE; Protozoan Infections --congenital--CN; Protozoan Infections--transmission--TM

Record Date Created: 19891106

Record Date Completed: 19891106

8/9/34

DIALOG(R) File 155:MEDLINE(R)

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06387211 90011611 PMID: 2795380 Record Identifier: 90011611

Neospora caninum (Protozoa: apicomplexa) infections in mice.

Lindsay D S ; Dubey J P

Zoonotic Diseases Laboratory, U.S.D.A., Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Oct 1989, 75 (5) p772-9,

ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Other Citation Owner: NASA

Record type: Completed

Subfile: INDEX MEDICUS

Groups of mice were given 0 mg, 4 mg, or 2 mg of methylprednisolone acetate (MPA) 7 days prior to, the day of, and 7 days after subcutaneous inoculation with 0 or 2 x 10(5) tachyzoites of **Neospora caninum**. Clinical signs of disease were seen only in mice given both MPA and N. caninum tachyzoites. Mice given 4 mg MPA and N. caninum tachyzoites developed severe disseminated neosporosis and most died or were killed when comatose 11-13 days postinoculation (PI). Acute pneumonia, polymyositis, encephalitis, hepatitis, and pancreatitis were the main lesions in these mice. Mice given 2 mg MPA and N. caninum developed mild pneumonia and many mice began showing neurological signs 14 days PI. Neurological signs consisted mainly of pronounced head-tilting and associated impairment of

movement. Grossly visible 1-2-mm single or multiple, white areas of discoloration were seen in the brains of many of these mice. Encephalitis, ganglioradiculoneuritis, pneumonia, and polymyositis were the main changes seen in these mice. Tissue cysts of *N. caninum* were only seen in mice given 2 mg MPA and were first seen 21 days PI. Tissue cysts were 16-34 by 13-29 microns and had a 1.5-3.0-microns-thick cyst wall. Tissue cysts were seen only in the brain. Mice given 4 mg MPA and tachyzoites and host cells that had been frozen for 1 wk did not develop clinical signs of infection, indicating that freezing kills tachyzoites and that viruses or other agents were not involved in the genesis of disease seen in mice given MPA and viable tachyzoites. (ABSTRACT TRUNCATED AT 250 WORDS)

Tags: Animal; Female

Descriptors: *Protozoan Infections--pathology--PA; Antibodies, Protozoan --analysis--AN; Brain--parasitology--PS; Brain--pathology--PA; Disease Models, Animal; Heart--parasitology--PS; Methylprednisolone--pharmacology --PD; Mice; Microscopy, Electron; Myocardium--pathology--PA; Protozoa --immunology--IM; Protozoa--isolation and purification--IP; Protozoan Infections--immunology--IM; Protozoan Infections--parasitology--PS; Spinal Cord--parasitology--PS; Time Factors

CAS Registry No.: 0 (Antibodies, Protozoan); 83-43-2 (Methylprednisolone)

Record Date Created: 19891101

Record Date Completed: 19891101

8/9/35

DIALOG(R) File 155:MEDLINE(R)

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06387210 90011610 PMID: 2795379

Transplacental Neospora caninum infection in cats.

Dubey J P; Lindsay D S

Zoonotic Diseases Laboratory, USDA, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Oct 1989, 75 (5) p765-71,

ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Transplacental transmission of *Neospora caninum* was studied in 2 pregnant cats (queens). Queen 1 was inoculated subcutaneously with 2 x 10(6) cell culture-derived *N. caninum* tachyzoites on day 47 of gestation. She gave birth to a full-term kitten on the 17th day after inoculation. The kitten died the second day after birth due to generalized *N. caninum* infection. The mother cat was killed on the third day after parturition and was found to have a macerated kitten in the uterus. Severe placentitis, metritis, hepatitis, and nephritis due to *N. caninum* were seen in tissues from the queen. Queen 2 was fed *N. caninum* tissue cysts and mated 111 days later. She gave birth to 3 healthy full-term kittens. The kittens were necropsied at 2, 22, and 30 days of age. *Neospora caninum* was recovered from the organs and was seen in histologic sections in 1 of the 3 kittens. Results indicate that *N. caninum* can be transplacentally transmitted in cats during acute and chronic stages of infection. *Neospora caninum*-specific IgG antibodies were demonstrated in the sera of inoculated cats and nursing kittens.

Tags: Animal; Female; Pregnancy

Descriptors: *Cat Diseases--transmission--TM; *Placenta--parasitology--PS; *Placenta Diseases--veterinary--VE; *Protozoa--isolation and purification --IP; *Protozoan Infections, Animal; Antibodies, Protozoan--analysis--AN; Cat Diseases--congenital--CN; Cat Diseases--parasitology--PS; Cats; Maternal-Fetal Exchange; Placenta Diseases--parasitology--PS; Pregnancy Complications, Infectious--parasitology--PS; Pregnancy Complications, Infectious--veterinary--VE; Protozoa--immunology--IM; Protozoan Infections --congenital--CN; Protozoan Infections--parasitology--PS; Protozoan Infections--transmission--TM

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19891101

Record Date Completed: 19891101

8/9/36

DIALOG(R) File 155:MEDLINE(R)

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06125932 89141279. PMID: 2493088

In vitro development of Neospora caninum (Protozoa: Apicomplexa) from dogs.

Lindsay D S ; Dubey J P

U.S. Department of Agriculture, Livestock and Poultry Sciences Institute, BARC-East, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Feb 1989, 75 (1) p163-5,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

The development of **Neospora caninum** isolated from naturally infected dogs was examined in mammalian cell cultures. Tachyzoites developed by endodyogeny when inoculated onto bovine monocyte or bovine cardiopulmonary artery endothelial cell cultures. Tachyzoites were 5.0 by 2.0 microns and had a posteriorly located nucleus. Cytopathogenic effects of parasite development consisted of the formation of holes in the cell monolayer associated with the rupture of infected host cells. Serial passage of tachyzoites was achieved by subinoculation of tachyzoites onto non-infected bovine monocyte cell cultures. It appears that *N. caninum* can be continuously grown in cell cultures.

Tags: Animal

Descriptors: *Apicomplexa--growth and development--GD; Cells, Cultured; Dogs; Serial Passage

Record Date Created: 19890406

Record Date Completed: 19890406

8/9/37

DIALOG(R) File 155:MEDLINE(R)

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06125927 89141274 PMID: 2493087

Fatal Neospora caninum infection in kittens.

Dubey J P; Lindsay D S

Zoonotic Diseases Laboratory, U.S. Department of Agriculture, BARC-East, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Feb 1989, 75 (1) p148-51,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Three 3-day-old kittens were inoculated subcutaneously and orally with **Neospora caninum** tachyzoites. A littermate and the queen were not inoculated with *N. caninum* and served as controls. Kitten 1 died between 14 and 16 days postinoculation (DPI) and was eaten by the mother. Kitten 2 died 17 DPI and kitten 3 was euthanized 29 DPI in a moribund condition. The control littermate and the dam remained healthy. Granulomatous skeletal myositis and nonsuppurative encephalomyelitis were the main lesions and were associated with numerous *N. caninum* tachyzoites in kittens 2 and 3. Cysts were found in kitten 3. Oocysts were not found in any cats. Neither lesions nor parasites were found in control cats.

Tags: Animal

Descriptors: *Cat Diseases--parasitology--PS; *Protozoan Infections, Animal; Animals, Newborn--parasitology--PS; Apicomplexa; Cat Diseases --mortality--MO; Cat Diseases--pathology--PA; Cats; Kidney--parasitology --PS; Kidney--pathology--PA; Liver--parasitology--PS; Liver--pathology --PA; Protozoan Infections--mortality--MO; Protozoan Infections--pathology --PA

Record Date Created: 19890406
Record Date Completed: 19890406

8/9/38

DIALOG(R) File 155:MEDLINE(R)

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06125926 89141273 PMID: 2493086

Neospora caninum-like protozoon associated with fatal myelitis in newborn calves.

Dubey J P; Leathers C W; Lindsay D S

Zoonotic Diseases Laboratory, U.S. Department of Agriculture, BARC-East, Beltsville, Maryland 20705.

Journal of parasitology (UNITED STATES) Feb 1989, 75 (1) p146-8,
ISSN 0022-3395 Journal Code: 7803124

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum-like organisms were found in histologic sections of spinal cord of 4 paralyzed calves as reported by Parish et al. (1987). Tachyzoites divided by endodyogeny. Tissue cysts were up to 62 microns wide and the cyst wall was up to 2.5 microns thick. The organism in calves was structurally distinct from *Toxoplasma gondii* and *Sarcocystis* species and reacted positively with anti-N. caninum serum in an immunoperoxidase test.

Tags: Animal

Descriptors: *Cattle Diseases--parasitology--PS; *Myelitis--veterinary--VE; *Protozoan Infections, Animal; Animals, Newborn--parasitology--PS; Apicomplexa; Cattle; Cattle Diseases--mortality--MO; Myelitis--mortality--MO; Myelitis--parasitology--PS; Protozoan Infections--mortality--MO; Spinal Cord--parasitology--PS

Record Date Created: 19890406

Record Date Completed: 19890406

8/9/39

DIALOG(R) File 155:MEDLINE(R)

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06064499 89079511 PMID: 3144521

Neonatal Neospora caninum infection in dogs: isolation of the causative agent and experimental transmission.

Dubey J P; Hattel A L; Lindsay D S ; Topper M J

Livestock and Poultry Sciences Institute, USDA, Beltsville, MD 20705.

Journal of the American Veterinary Medical Association (UNITED STATES)
Nov 15 1988, 193 (10) p1259-63, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum infection was diagnosed in 5 young dogs from 2 litters with a common parentage. The pups were born healthy, but developed hind limb paresis 5 to 8 weeks after birth. The predominant lesions were polyradiculoneuritis and granulomatous polymyositis. **Neospora** caninum was seen microscopically in sections of naturally infected pups, and was isolated in cell cultures, mice, and dogs inoculated with infected canine tissues. Antibodies to N caninum were detected in sera of infected dogs by indirect fluorescent antibody test.

Tags: Animal; Female; Male

Descriptors: *Animals, Newborn--parasitology--PS; *Dog Diseases--parasitology--PS; *Protozoan Infections, Animal; Apicomplexa--isolation and purification--IP; Dog Diseases--pathology--PA; Dog Diseases--transmission--TM; Dogs; Protozoan Infections--pathology--PA; Protozoan Infections--transmission--TM

Record Date Created: 19890209

Record Date Completed: 19890209

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$8.19  39 Type(s) in Format  9
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$14.38 Estimated cost File155
$0.75 TELNET
$15.13 Estimated cost this search
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DIALOG
2/04
188

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S2	3489	S1/1997:2004
S3	1545	S1 NOT S2
S4	899	RD (unique items)
S5	433	S4 AND (CULTUR? OR ATTENU? OR PASSAG? OR SUBCULTUR? OR MON-KEY? OR KIDNEY? OR (NC?) OR CANINUM)
S6	264	S4 AND (VACCIN? OR IMMUNI? OR INJECT? OR ADMINIS?)
S7	1	(S5 OR S6) AND ADJUV?
S8	79	S5 AND S6
S9	4228	NEOSPORA?
S10	0	S8/1997:2004
S11	0	S10 AND CANINUM?
S12	0	S11 AND AU= (BRAKE? OR BLAGBURN? OR LINDSAY?)
S13	3239	S9/1997:2004
S14	2927	S13 AND CANINUM?
S15	23271	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
S16	224	S14 AND S15
S17	78	RD (unique items)
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	3239	S13
S18	989	S9 NOT S13
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Set	Items	Description
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S2	3489	S1/1997:2004
S3	1545	S1 NOT S2
S4	899	RD (unique items)
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S8	79	S5 AND S6
S9	4228	NEOSPORA?
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S14	2927	S13 AND CANINUM?
S15	23271	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
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S17	78	RD (unique items)
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23271 S15
S19 171 S18 AND S15
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>>> or undefined in one or more files.
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2442 NC1
34 NC-1
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Processed 10 of 26 files ...
Processing
Processed 20 of 26 files ...
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Completed processing all files
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37947 SUBCULT?
4523685 CULTUR?
423914 MONKEY?
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MARC?
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S3	1545	S1 NOT S2
S4	899	RD (unique items)
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S6	264	S4 AND (VACCIN? OR IMMUNI? OR INJECT? OR ADMINIS?)
S7	1	(S5 OR S6) AND ADJUV?
S8	79	S5 AND S6
S9	4228	NEOSPORA?
S10	0	S8/1997:2004
S11	0	S10 AND CANINUM?
S12	0	S11 AND AU= (BRAKE? OR BLAGBURN? OR LINDSAY?)
S13	3239	S9/1997:2004
S14	2927	S13 AND CANINUM?
S15	23271	AU=BRAKE ? OR AU=BLAGBURN ? OR AU=LINDSAY ?
S16	224	S14 AND S15
S17	78	RD (unique items)
S18	989	S9 NOT S13
S19	171	S18 AND S15
S20	0	S19/1997:2004
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S22	8236484	PARENT? OR SUBCULT? OR CULTUR? OR MONKEY? OR KIDNEY? OR MA- RC?

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Processing
Processed 10 of 26 files ...
Completed processing all files
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8236484 S22
S23 13186 S21 AND S22
?s s19 and s21 and s22
171 S19
72184 S21
8236484 S22
S24 0 S19 AND S21 AND S22
?s s19 and s21
171 S19
72184 S21
S25 17 S19 AND S21
?s s19 and s22
171 S19
8236484 S22
S26 57 S19 AND S22
?s s25 and s26
17 S25

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    S27      0  S25 AND S26
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          17  S25
          57  S26
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18/9/1 (Item 1 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10819880 97109766 PMID: 8952023

Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S; Trees A J; Stobart R H

University of Wyoming, College of Agriculture, Department of Veterinary Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,

ISSN 0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six groups of six pregnant ewes each were inoculated with 170,000 or 1,700,000 tachyzoites of *Neospora* caninum on gestation day 65, 90, or 120. All ewes seroconverted, and none showed signs of illness other than abortion. Regardless of the inoculum dose, all ewes inoculated on gestation day 65 aborted; ewes inoculated on gestation day 90 aborted, gave birth to weak lambs, or gave birth to clinically normal lambs; and all ewes inoculated on gestation day 120 gave birth to clinically normal lambs. Using an immunohistological procedure that stains bradyzoites, we observed protozoal cysts in brains of 11 of 29 (38%) aborted fetuses, in one of four (25%) weak lambs, and in seven of 18 (39%) clinically normal lambs. Cysts were not observed in extraneural tissues from two clinically normal lambs that had cysts in the brain. No evidence of infection was observed in tissues of five ewes examined using an immunohistological procedure that stains *N. caninum* tachyzoites and bradyzoites. Multifocal nonsuppurative encephalitis was observed in 46 of 51 (90%) aborted, weak, or clinically normal lambs. Cerebral necrosis, dystrophic mineralization, and meningitis were also commonly identified in live and aborted lambs (even when severely autolyzed). Nonsuppurative, necrotizing placentitis was observed in 15 of 17 (88%) placentas. Nonsuppurative myositis was common in fetuses but not in live lambs. Inflammation occurred less frequently in liver and lung. Clinical and pathological features of neosporosis in sheep closely resemble those of bovine neosporosis and ovine toxoplasmosis. Although abortion caused by naturally occurring neosporosis in sheep has not been reported, diagnosticians should carefully distinguish between neosporosis and toxoplasmosis in cases of ovine protozoal abortion unless future investigations exclude the likelihood of naturally acquired neosporosis in sheep.

Tags: Animal; Comparative Study; Female; Human; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Animals, Newborn--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* --isolation and purification--IP; *Pregnancy Complications, Parasitic--veterinary--VE; *Sheep Diseases--pathology--PA; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--analysis--AN; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--etiology--ET; Coccidiosis--pathology--PA; Disease Models, Animal; Encephalitis--pathology--PA; Encephalitis--veterinary--VE; Immunohistochemistry--methods--MT; Incidence; Liver--pathology--PA; Lung--pathology--PA; Myositis--pathology--PA; Myositis--veterinary--VE; Necrosis; *Neospora* --immunology--IM; Pregnancy Complications, Parasitic--pathology--PA; Sheep; Sheep Diseases--etiology--ET; Toxoplasmosis, Animal--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970306

Record Date Completed: 19970306

18/9/2 (Item 2 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10810517 97100246 PMID: 8944807

Neosporosis as a cause of equine protozoal myeloencephalitis.

Marsh A E; Barr B C; Madigan J; Lakritz J; Nordhausen R; Conrad P A

Department of Pathology, Microbiology, and Immunology, School of
Veterinary Medicine, University of California, Davis 95616-8745, USA.

Journal of the American Veterinary Medical Association (UNITED STATES)
Dec 1 1996, 209 (11) p1907-13, ISSN 0003-1488 Journal Code: 7503067

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neosporosis was diagnosed in an 11-year-old Quarter Horse gelding with clinical signs and diagnostic test results compatible with equine protozoal myeloencephalitis (EPM). Presumptive postmortem diagnosis of EPM attributable to *Sarcocystis neurona* infection is generally made on the basis of detecting an antibody titer to *S. neurona* in the CSF or characteristic histologic lesions, even when parasites have not been specifically identified. Neosporosis was confirmed in the horse described here by use of immunohistochemical examination, in vitro culturing, and ultrastructural and molecular characterization of parasites from infected tissues. Antibody testing of serum and CSF samples indicated that *Neospora*-specific anti-bodies can react with *S. neurona* proteins on western blot analysis. The confirmation that neosporosis in horses can mimic EPM emphasizes the need to broaden the etiologic definition of EPM beyond infections exclusively attributable to *S. neurona*.

Tags: Animal; Case Report; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *Encephalomyelitis--veterinary--VE; *Horse Diseases--parasitology--PS; * *Neospora* --isolation and purification--IP; Antibodies, Protozoan--cerebrospinal fluid--CF; Antibodies, Protozoan--immunology--IM; Antigens, Protozoan--analysis--AN; Coccidiosis--parasitology--PS; Encephalomyelitis--parasitology--PS; Horses; Immunohistochemistry; *Neospora* --immunology--IM; *Neospora* --ultrastructure--UL; Spinal Cord--parasitology--PS; Spinal Cord--ultrastructure--UL

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan)

Record Date Created: 19970130

Record Date Completed: 19970130

18/9/3 (Item 3 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10795493 97084977 PMID: 8931299

Clinical aspects of 27 cases of neosporosis in dogs.

Barber J S; Trees A J

Department of Veterinary Parasitology, Liverpool School of Tropical
Medicine.

Veterinary record (ENGLAND) Nov 2 1996, 139 (18) p439-43, ISSN
0042-4900 Journal Code: 0031164

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Twenty-seven cases of neosporosis in European dogs are described. The disease was confirmed by immunohistochemistry, electron microscopy, or a favourable response to treatment in the dogs with appropriate clinical signs, and by the presence of antibodies to *Neospora caninum* but not to *Toxoplasma gondii*. The affected dogs were two days to seven years old, and of 13 different breeds. Both sexes were affected and in most cases littermates remained normal. Twenty-one cases had an initial hindlimb paresis or ataxia, in which muscle atrophy was the most consistent clinical sign. Rigid hyperextension developed in approximately half of the cases. Anorexia and pyrexia were rare. Other clinical signs included forelimb ataxia, head tremors with tetraparesis and sudden collapse due to myocarditis. Titres of > or = 1:800 in the *N. caninum* indirect fluorescent antibody test were detected in the 20 cases from which serum samples were taken. Such high titres are rare in healthy dogs and strongly suggest a diagnosis of neosporosis. Sixteen of the dogs received appropriate antiprotozoal treatment with clindamycin, potentiated sulphonamides and/or pyrimethamine; 10 made a full or functional recovery. Recovery was less

likely in peracute cases with severe clinical signs, and when the treatment was delayed.

Tags: Animal; Female; Male; Support, Non-U.S. Gov't
Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--diagnosis--DI;
*Dog Diseases--physiopathology--PP; * **Neospora** ; Anti-Infective Agents
--therapeutic use--TU; Antibiotics--therapeutic use--TU; Antibodies,
Protozoan--blood--BL; Antimetabolites--therapeutic use--TU; Ataxia
--etiology--ET; Ataxia--physiopathology--PP; Ataxia--veterinary--VE;
Clindamycin--therapeutic use--TU; Coccidiosis--diagnosis--DI; Coccidiosis
--physiopathology--PP; Dog Diseases--drug therapy--DT; Dogs; Fluorescent
Antibody Technique, Indirect--veterinary--VE; Immunohistochemistry;
Microscopy, Electron--veterinary--VE; Muscle, Skeletal--physiology--PH;
Myocarditis--etiology--ET; Myocarditis--physiopathology--PP; Myocarditis
--veterinary--VE; **Neospora** --immunology--IM; **Neospora** --isolation and
purification--IP; Paresis--etiology--ET; Paresis--physiopathology--PP;
Paresis--veterinary--VE; Pyrimethamine--therapeutic use--TU; Sulfonamides
--therapeutic use--TU; Treatment Outcome

CAS Registry No.: 0 (Anti-Infective Agents); 0 (Antibiotics); 0
(Antibodies, Protozoan); 0 (Antimetabolites); 0 (Sulfonamides);
18323-44-9 (Clindamycin); 58-14-0 (Pyrimethamine)

Record Date Created: 19970224

Record Date Completed: 19970224

18/9/4 (Item 4 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10785477 97135740 PMID: 8981277 .

Distribution of Neospora caninum within the central nervous system and other tissues of six dogs with clinical neosporosis.

Barber J S; Payne-Johnson C E; Trees A J
Department of Parasitology, Liverpool School of Tropical Medicine,
University of Liverpool.

Journal of small animal practice (ENGLAND) Dec 1996, 37 (12) p568-74
, ISSN 0022-4510 Journal Code: 0165053

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six cases of neosporosis in dogs were diagnosed on the basis of clinical signs, serology and immunohistochemistry. The brains and spinal cords, at several levels, and various other tissues were examined using anti-**Neospora caninum** serum by an immunoperoxidase technique. Parasite density varied markedly from case to case. Although found most consistently in the cerebrum, parasites were distributed throughout the central nervous system (CNS), both within the grey and white matter and within nerve roots. Clinical signs were not related to the position of parasites. Tissue cysts were found infrequently in all areas of the CNS, but not in other tissues. Parasite density was not related to the age of the dog or whether treatment had been given. However, with the exception of the only adult dog examined, more CNS parasites were found in dogs with a longer duration of illness and with higher antibody titres. Tachyzoites were present in skeletal muscles, in the muscularis of the oesophagus, in heart, lung and, less frequently, liver, and rarely in the adrenal gland, thyroid gland and uterus; no clinical signs were seen resulting from damage to these organs. Parasites were not observed in lymphoid tissue. In visceral organs, parasites were most widely distributed in peracute cases. For post mortem diagnosis of neosporosis, the CNS, particularly the cerebrum, is the optimum tissue to examine but parasites may also be found in many other tissues, especially in acute cases. Muscle biopsy of appropriate muscles (as suggested by the clinical signs) provides the possibility of a definitive premortem diagnosis.

Tags: Animal; Case Report; Female; Male; Support, Non-U.S. Gov't
Descriptors: Central Nervous System--parasitology--PS; *Coccidiosis
--veterinary--VE; *Dog Diseases--pathology--PA; * **Neospora** --isolation and
purification--IP; Antibodies, Protozoan--blood--BL; Autopsy--veterinary--VE;
; Biopsy--veterinary--VE; Brain--parasitology--PS; Brain--pathology--PA;

Central Nervous System--pathology--PA; Coccidiosis--diagnosis--DI;
Coccidiosis--pathology--PA; Dog Diseases--diagnosis--DI; Dog Diseases
--parasitology--PS; Dogs; Fluorescent Antibody Technique, Indirect
--veterinary--VE; Immunohistochemistry; Muscle, Skeletal--parasitology--PS;
Muscle, Skeletal--pathology--PA; **Neospora** --immunology--IM; Spinal Cord
--parasitology--PS; Spinal Cord--pathology--PA
CAS Registry No.: 0 (Antibodies, Protozoan)
Record Date Created: 19970320
Record Date Completed: 19970320

18/9/5 (Item 5 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

10762007 97111959 PMID: 8953695
**Stillbirth/perinatal weak calf syndrome: serological examination for
evidence of Neospora caninum infection.**
Graham D A; Smyth J A; McLaren I E; Ellis W A
Veterinary Sciences Division, Department of Agriculture for Northern
Ireland, Stormont, Belfast.
Veterinary record (ENGLAND) Nov 23 1996, 139 (21) p523-4, ISSN
0042-4900 Journal Code: 0031164
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Tags: Animal; Female; Pregnancy
Descriptors: Abortion, Veterinary--etiology--ET; *Cattle Diseases
--parasitology--PS; *Coccidiosis--complications--CO; *Coccidiosis
--veterinary--VE; * **Neospora** ; Animals, Newborn--parasitology--PS; Cattle;
Cattle Diseases--physiopathology--PP; Coccidiosis--physiopathology--PP
Record Date Created: 19970304
Record Date Completed: 19970304

18/9/6 (Item 6 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.

10761794 97111744 PMID: 8953546
Central nervous system neosporosis in a foal.
Lindsay D S; Steinberg H; Dubielzig R R; Semrad S D; Konkle D M; Miller P
E; Blagburn B L
Department of Pathobiology, College of Veterinary Medicine, Auburn
University, AL 36849-5519, USA.
Journal of veterinary diagnostic investigation - official publication of
the American Association of Veterinary Laboratory Diagnosticians, Inc (
UNITED STATES) Oct 1996, 8 (4) p507-10, ISSN 1040-6387
Journal Code: 9011490
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Tags: Animal; Case Report; Female
Descriptors: Brain Diseases--veterinary--VE; *Coccidiosis--veterinary--VE
; *Horse Diseases; *Muscular Diseases--veterinary--VE; * **Neospora** ; Brain
Diseases--parasitology--PS; Brain Diseases--pathology--PA; Coccidiosis
--pathology--PA; Cysts--parasitology--PS; Cysts--pathology--PA; Cysts
--veterinary--VE; Horses; Muscular Diseases--parasitology--PS; Muscular
Diseases--pathology--PA; **Neospora** --isolation and purification--IP
Record Date Created: 19970314
Record Date Completed: 19970314

18/9/7 (Item 7 from file: 155)
DIALOG(R) File 155:MEDLINE(R)

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10759880 97109766 PMID: 8952023

Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S; Trees A J; Stobart R H

University of Wyoming, College of Agriculture, Department of Veterinary Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,

ISSN 0300-9858 Journal Code: 0312020

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Six groups of six pregnant ewes each were inoculated with 170,000 or 1,700,000 tachyzoites of *Neospora* caninum on gestation day 65, 90, or 120. All ewes seroconverted, and none showed signs of illness other than abortion. Regardless of the inoculum dose, all ewes inoculated on gestation day 65 aborted; ewes inoculated on gestation day 90 aborted, gave birth to weak lambs, or gave birth to clinically normal lambs; and all ewes inoculated on gestation day 120 gave birth to clinically normal lambs. Using an immunohistological procedure that stains bradyzoites, we observed protozoal cysts in brains of 11 of 29 (38%) aborted fetuses, in one of four (25%) weak lambs, and in seven of 18 (39%) clinically normal lambs. Cysts were not observed in extraneural tissues from two clinically normal lambs that had cysts in the brain. No evidence of infection was observed in tissues of five ewes examined using an immunohistological procedure that stains *N. caninum* tachyzoites and bradyzoites. Multifocal nonsuppurative encephalitis was observed in 46 of 51 (90%) aborted, weak, or clinically normal lambs. Cerebral necrosis, dystrophic mineralization, and meningitis were also commonly identified in live and aborted lambs (even when severely autolyzed). Nonsuppurative, necrotizing placentitis was observed in 15 of 17 (88%) placentas. Nonsuppurative myositis was common in fetuses but not in live lambs. Inflammation occurred less frequently in liver and lung. Clinical and pathological features of neosporosis in sheep closely resemble those of bovine neosporosis and ovine toxoplasmosis. Although abortion caused by naturally occurring neosporosis in sheep has not been reported, diagnosticians should carefully distinguish between neosporosis and toxoplasmosis in cases of ovine protozoal abortion unless future investigations exclude the likelihood of naturally acquired neosporosis in sheep.

Tags: Animal; Comparative Study; Female; Human; Pregnancy; Support, U.S. Gov't, Non-P.H.S.

Descriptors: Animals, Newborn--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora* --isolation and purification--IP; *Pregnancy Complications, Parasitic--veterinary--VE; *Sheep Diseases--pathology--PA; Abortion, Veterinary--epidemiology--EP; Antibodies, Protozoan--analysis--AN; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--etiology--ET; Coccidiosis--pathology--PA; Disease Models, Animal; Encephalitis--pathology--PA; Encephalitis--veterinary--VE; Immunohistochemistry--methods--MT; Incidence; Liver--pathology--PA; Lung--pathology--PA; Myositis--pathology--PA; Myositis--veterinary--VE; Necrosis; *Neospora* --immunology--IM; Pregnancy Complications, Parasitic--pathology--PA; Sheep; Sheep Diseases--etiology--ET; Toxoplasmosis, Animal--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970306

Record Date Completed: 19970306

18/9/8 (Item 8 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10750517 97100246 PMID: 8944807

Neosporosis as a cause of equine protozoal myeloencephalitis.

Marsh A E; Barr B C; Madigan J; Lakritz J; Nordhausen R; Conrad P A

Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine, University of California, Davis 95616-8745, USA.

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neosporosis was diagnosed in an 11-year-old Quarter Horse gelding with clinical signs and diagnostic test results compatible with equine protozoal myeloencephalitis (EPM). Presumptive postmortem diagnosis of EPM attributable to *Sarcocystis neurona* infection is generally made on the basis of detecting an antibody titer to *S. neurona* in the CSF or characteristic histologic lesions, even when parasites have not been specifically identified. Neosporosis was confirmed in the horse described here by use of immunohistochemical examination, in vitro culturing, and ultrastructural and molecular characterization of parasites from infected tissues. Antibody testing of serum and CSF samples indicated that *Neospora*-specific anti-bodies can react with *S. neurona* proteins on western blot analysis. The confirmation that neosporosis in horses can mimic EPM emphasizes the need to broaden the etiologic definition of EPM beyond infections exclusively attributable to *S. neurona*.

Tags: Animal; Case Report; Male; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *Encephalomyelitis--veterinary--VE; *Horse Diseases--parasitology--PS; * *Neospora* --isolation and purification--IP; Antibodies, Protozoan--cerebrospinal fluid--CF; Antibodies, Protozoan--immunology--IM; Antigens, Protozoan--analysis--AN; Coccidiosis--parasitology--PS; Encephalomyelitis--parasitology--PS; Horses; Immunohistochemistry; *Neospora* --immunology--IM; *Neospora* --ultrastructure--UL; Spinal Cord--parasitology--PS; Spinal Cord--ultrastructure--UL

CAS Registry No.: 0 (Antibodies, Protozoan); 0 (Antigens, Protozoan)

Record Date Created: 19970130

Record Date Completed: 19970130

18/9/9 (Item 9 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10735493 97084977 PMID: 8931299

Clinical aspects of 27 cases of neosporosis in dogs.

Barber J S; Trees A J

Department of Veterinary Parasitology, Liverpool School of Tropical Medicine.

Veterinary record (ENGLAND) Nov 2 1996, 139 (18) p439-43, ISSN 0042-4900 Journal Code: 0031164

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Twenty-seven cases of neosporosis in European dogs are described. The disease was confirmed by immunohistochemistry, electron microscopy, or a favourable response to treatment in the dogs with appropriate clinical signs, and by the presence of antibodies to *Neospora caninum* but not to *Toxoplasma gondii*. The affected dogs were two days to seven years old, and of 13 different breeds. Both sexes were affected and in most cases littermates remained normal. Twenty-one cases had an initial hindlimb paresis or ataxia, in which muscle atrophy was the most consistent clinical sign. Rigid hyperextension developed in approximately half of the cases. Anorexia and pyrexia were rare. Other clinical signs included forelimb ataxia, head tremors with tetraparesis and sudden collapse due to myocarditis. Titres of $>$ or $= 1:800$ in the *N. caninum* indirect fluorescent antibody test were detected in the 20 cases from which serum samples were taken. Such high titres are rare in healthy dogs and strongly suggest a diagnosis of neosporosis. Sixteen of the dogs received appropriate antiprotozoal treatment with clindamycin, potentiated sulphonamides and/or pyrimethamine; 10 made a full or functional recovery. Recovery was less likely in peracute cases with severe clinical signs, and when the treatment was delayed.

Tags: Animal; Female; Male; Support, Non-U.S. Gov't
 Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--diagnosis--DI;
 *Dog Diseases--physiopathology--PP; * **Neospora** ; Anti-Infective Agents
 --therapeutic use--TU; Antibiotics--therapeutic use--TU; Antibodies,
 Protozoan--blood--BL; Antimetabolites--therapeutic use--TU; Ataxia
 --etiology--ET; Ataxia--physiopathology--PP; Ataxia--veterinary--VE;
 Clindamycin--therapeutic use--TU; Coccidiosis--diagnosis--DI; Coccidiosis
 --physiopathology--PP; Dog Diseases--drug therapy--DT; Dogs; Fluorescent
 Antibody Technique, Indirect--veterinary--VE; Immunohistochemistry;
 Microscopy, Electron--veterinary--VE; Muscle, Skeletal--physiology--PH;
 Myocarditis--etiology--ET; Myocarditis--physiopathology--PP; Myocarditis
 --veterinary--VE; **Neospora** --immunology--IM; **Neospora** --isolation and
 purification--IP; Paresis--etiology--ET; Paresis--physiopathology--PP;
 Paresis--veterinary--VE; Pyrimethamine--therapeutic use--TU; Sulfonamides
 --therapeutic use--TU; Treatment Outcome
 CAS Registry No.: 0 (Anti-Infective Agents); 0 (Antibiotics); 0
 (Antibodies, Protozoan); 0 (Antimetabolites); 0 (Sulfonamides);
 18323-44-9 (Clindamycin); 58-14-0 (Pyrimethamine)
 Record Date Created: 19970224
 Record Date Completed: 19970224

18/9/10 (Item 10 from file: 155)
 DIALOG(R) File 155:MEDLINE(R)
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10725699 97075132 PMID: 8917558

Apicidin: a novel antiprotozoal agent that inhibits parasite histone deacetylase.

Darkin-Rattray S J; Gurnett A M; Myers R W; Dulski P M; Crumley T M;
 Allocco J J; Cannova C; Meinke P T; Colletti S L; Bednarek M A; Singh S B;
 Goetz M A; Dombrowski A W; Polishook J D; Schmatz D M

Department of Parasite Biochemistry, Merck Research Laboratories, Rahway,
 NJ 07065, USA.

Proceedings of the National Academy of Sciences of the United States of
 America (UNITED STATES) Nov 12 1996, 93 (23) p13143-7, ISSN 0027-8424
 Journal Code: 7505876

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A novel fungal metabolite, apicidin [cyclo(N-O-methyl-L-tryptophanyl-L-isoleucinyl-D-pipecolinyl-L-2-amino-8-oxodecanoyl)], that exhibits potent, broad spectrum antiprotozoal activity in vitro against Apicomplexan parasites has been identified. It is also orally and parenterally active in vivo against Plasmodium berghei malaria in mice. Many Apicomplexan parasites cause serious, life-threatening human and animal diseases, such as malaria, cryptosporidiosis, toxoplasmosis, and coccidiosis, and new therapeutic agents are urgently needed. Apicidin's antiparasitic activity appears to be due to low nanomolar inhibition of Apicomplexan histone deacetylase (HDA), which induces hyperacetylation of histones in treated parasites. The acetylation-deacetylation of histones is a thought to play a central role in transcriptional control in eukaryotic cells. Other known HDA inhibitors were also evaluated and found to possess antiparasitic activity, suggesting that HDA is an attractive target for the development of novel antiparasitic agents.

Tags: Animal; Female; Human; Support, Non-U.S. Gov't

Descriptors: *Antiprotozoal Agents--pharmacology--PD; *Enzyme Inhibitors
 --pharmacology--PD; *Histone Deacetylases--antagonists and inhibitors--AI;
 *Malaria--drug therapy--DT; *Peptides, Cyclic--pharmacology--PD;
 *Plasmodium berghei; *Protozoa--drug effects--DE; Eimeria tenella--drug
 effects--DE; Kinetics; Mice; Mice, Inbred BALB C; **Neospora** --drug effects
 --DE; Peptides, Cyclic--therapeutic use--TU; Plasmodium falciparum--drug
 effects--DE; Protein Binding; Protozoan Infections--drug therapy--DT;
 Structure-Activity Relationship; Toxoplasma--drug effects--DE

CAS Registry No.: 0 (Antiprotozoal Agents); 0 (Enzyme Inhibitors); 0
 (Peptides, Cyclic); 0 (apicidin); 83209-65-8 (HC toxin)

Enzyme No.: EC 3.5.1.- (Histone Deacetylases)

Record Date Created: 19961230
Record Date Completed: 19961230

18/9/11 (Item 11 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
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10723243 97072664 PMID: 8915429

Culling associated with Neospora caninum infection in dairy cows.
Thurmond M C; Hietala S K
Department of Medicine and Epidemiology, School of Veterinary Medicine,
University of California, Davis 95616, USA.
American journal of veterinary research (UNITED STATES) Nov 1996, 57
(11) p1559-62, ISSN 0002-9645 Journal Code: 0375011
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

OBJECTIVES: To estimate the extent to which cows infected with *Neospora caninum* were culled, compared with noninfected cows, and to identify differences in reasons for culling between infected and noninfected cows. ANIMALS: 442 Holstein cows on a commercial dairy with 36% seroprevalence for *N. caninum*. PROCEDURE: Culling of cows was done after first calving without knowledge of *N. caninum* serologic status. RESULTS: Risk of a seropositive cow dying was not different from that of a seronegative cow ($P = 0.50$). Seropositive cows were culled 6.3 months earlier than seronegative cows, and had a 1.6 times greater risk of being culled, compared with seronegative cows ($P = 0.004$), after adjusting for culling risk associated with abortion. For cows culled for low milk production, culling risk for a seropositive cow was twice that for a seronegative cow ($P = 0.007$). CONCLUSIONS: The economic impact of *N. caninum* infection in dairy cattle can be expected to extend beyond that for abortion alone. Costs of the disease also may include premature culling and diminished milk production. CLINICAL RELEVANCE: Plans to control *N. caninum* infection on dairies should include consideration that benefits may include reduction in premature culling and increase in milk production.

Tags: Animal; Female; Pregnancy; Support, Non-U.S. Gov't
Descriptors: Cattle Diseases--parasitology--PS; *Coccidiosis--veterinary--VE; * *Neospora*; Abortion, Veterinary--parasitology--PS; Animal Husbandry; California; Cattle
Record Date Created: 19970429
Record Date Completed: 19970429

18/9/12 (Item 12 from file: 155)
DIALOG(R) File 155:MEDLINE(R)
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10703296 97052565 PMID: 8897199

Diagnosis of Neospora caninum and Toxoplasma gondii infection by PCR and DNA hybridization immunoassay.

Muller N; Zimmermann V; Hentrich B; Gottstein B
Institute of Parasitology, University of Berne, Switzerland.
nmueller@ipa.unibe.ch

Journal of clinical microbiology (UNITED STATES) Nov 1996, 34 (11)
p2850-2, ISSN 0095-1137 Journal Code: 7505564
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

A recently described PCR test for the identification of *Neospora caninum* and *Toxoplasma gondii* has been further developed and optimized in view of its practicability for routine diagnostic application. The *N. caninum*-specific PCR was adapted to the diagnostic operating standard of the *T. gondii*-specific PCR in that the uracil DNA glycosidase system was introduced, which eliminates potential carry-over contaminations of

amplified target DNA from previous reactions. Furthermore, both PCR tests were optimized by including a DNA hybridization immunoassay based on the use of the commercially available Gen-eti-k DEIA kit. This assay allowed highly sensitive and specific detection of respective DNA amplification products and thus substantially facilitated the reading and interpretation of the test results.

Tags: Animal; Human; Support, Non-U.S. Gov't

Descriptors: Coccidiosis--veterinary--VE; *DNA, Protozoan--genetics--GE; * **Neospora** ; *Polymerase Chain Reaction--methods--MT; *Toxoplasmosis--diagnosis--DI; *Toxoplasmosis, Animal--diagnosis--DI; Base Sequence; Coccidiosis--diagnosis--DI; Coccidiosis--parasitology--PS; DNA Primers--genetics--GE; Evaluation Studies; Immunoassay--methods--MT; Nucleic Acid Hybridization; Toxoplasmosis--parasitology--PS; Toxoplasmosis, Animal--parasitology--PS

CAS Registry No.: 0 (DNA Primers); 0 (DNA, Protozoan)

Record Date Created: 19970310

Record Date Completed: 19970310

18/9/13 (Item 13 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10699401 97048654 PMID: 8893485

Neospora caninum infection in a Napolitan mastiff dog from Spain.

Pumarola M; Anor S; Ramis A J; Borrás D; Gorraiz J; Dubey J P

Department of Pathology and Animal Productions, School of Veterinary Medicine, Autonomous University of Barcelona, Bellaterra, Spain.

Veterinary parasitology (NETHERLANDS) Sep 16 1996, 64 (4) p315-7,
ISSN 0304-4017 Journal Code: 7602745

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Fetal neosporosis-associated myeloencephalitis was diagnosed in a 4-month-old Napolitan mastiff dog from Spain. **Neospora caninum** tachyzoites and tissue cysts were observed in lesions in the central nervous system and the diagnosis was confirmed by immunohistochemical staining with anti-N. caninum monoclonal and polyclonal antibodies.

Tags: Animal; Case Report; Male

Descriptors: Coccidiosis--veterinary--VE; *Dog Diseases--pathology--PA; *Encephalomyelitis--veterinary--VE; * **Neospora** --isolation and purification--IP; Antibodies, Protozoan--blood--BL; Brain--parasitology--PS; Brain--pathology--PA; Coccidiosis--parasitology--PS; Coccidiosis--pathology--PA; Dog Diseases--parasitology--PS; Dogs; Encephalomyelitis--parasitology--PS; Encephalomyelitis--pathology--PA; Fluorescent Antibody Technique; **Neospora** --immunology--IM; Spain; Spinal Cord--parasitology--PS; Spinal Cord--pathology--PA

CAS Registry No.: 0 (Antibodies, Protozoan)

Record Date Created: 19970203

Record Date Completed: 19970203

18/9/14 (Item 14 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10698458 97047711 PMID: 8926100

Subcellular localization and functional characterization of Nc-p43, a major Neospora caninum tachyzoite surface protein.

Hemphill A

Institute of Parasitology, University of Bern, Switzerland.
hemphill@ipa.unibe.ch

Infection and immunity (UNITED STATES) Oct 1996, 64 (10) p4279-87,
ISSN 0019-9567 Journal Code: 0246127

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed
Subfile: INDEX MEDICUS

Neospora caninum is a recently identified coccidian parasite which shares many features with, but is clearly distinct from, Toxoplasma gondii. N. caninum tachyzoites infect a wide range of mammalian cells both in vivo and in vitro. The mechanisms by which infection is achieved are largely unknown. Recent evidence has suggested that a receptor-ligand system in which one or several host cell receptors bind to one or several parasite ligands is involved. Parasite cell surface-associated molecules such as the recently identified Nc-p43 antigen are prime suspects for being implicated in this physical interaction. In this study it is shown that invasion of Vero cell monolayers by N. caninum tachyzoites in vitro is impaired on incubation of parasites with subagglutinating amounts of affinity-purified antibodies directed against Nc-p43. Postembedding immunogold labeling with anti-Nc-p43 antibodies demonstrated that Nc-p43 is localized not only on the parasite cell surface but also within dense granules and rhoptries. The fate of Nc-p43 during intracellular proliferation of N. caninum tachyzoites and subsequent maturation of the parasitophorous vacuole was also studied.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: **Neospora** --chemistry--CH; *Protozoan Proteins--analysis--AN;
; Antigens, Surface--analysis--AN; Cercopithecus aethiops;
Immunohistochemistry; **Neospora** --ultrastructure--UL; Protozoan Proteins
--physiology--PH; Rabbits; Vero Cells

CAS Registry No.: 0 (Antigens, Surface); 0 (Nc-p43 protein); 0
(Protozoan Proteins)

Record Date Created: 19961114

Record Date Completed: 19961114

18/9/15 (Item 15 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10696181 97045418 PMID: 8890468

Neosporosis project.

Trees A J; Davison H C; Williams D J; Otter A; Bellworthy S J

Veterinary record (ENGLAND) Sep 21 1996, 139 (12) p299, ISSN

0042-4900 Journal Code: 0031164

Comment in Vet Rec. 1997 Dec 6;141(23) 607; Comment in PMID 9429280

Document type: Letter

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Tags: Animal

Descriptors: Cattle Diseases--diagnosis--DI; *Coccidiosis--veterinary--VE;
; * **Neospora** ; Cattle; Cattle Diseases--epidemiology--EP; Cattle Diseases
--prevention and control--PC; Coccidiosis--diagnosis--DI; Coccidiosis
--epidemiology--EP; Great Britain--epidemiology--EP; Pilot Projects

Record Date Created: 19970203

Record Date Completed: 19970203

18/9/16 (Item 16 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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10669488 97018561 PMID: 8865177

Discrimination of Neospora caninum from Toxoplasma gondii and other apicomplexan parasites by hybridization and PCR.

Kaufmann H; Yamage M; Roditi I; Dobbelaere D; Dubey J P; Holmdahl O J;
Trees A; Gottstein B

Institute of Parasitology, University of Berne, Switzerland.

Molecular and cellular probes (ENGLAND) Aug 1996, 10 (4) p289-97,

ISSN 0890-8508 Journal Code: 8709751

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Neospora caninum is a protozoan parasite which causes neurological problems in dogs and abortion in cattle. As *N. caninum* is difficult to distinguish morphologically from *Toxoplasma gondii*, we developed a molecular tool capable of discriminating between the two parasites. Genomic DNA was isolated from in vitro cultured *N. caninum* tachyzoites and cloned into a plasmid vector. Resulting colonies were subsequently screened by differential hybridization using *N. caninum* and *T. gondii* DNA. Two clones were characterized in detail: one clone, termed pNc5, was found to be specific for *N. caninum* whereas the second clone, pNc1, hybridized with DNA from both parasites. The sequence of pNc5 was determined and different oligonucleotide primers were designed for use in the polymerase chain reaction (PCR). A 944 bp fragment was specifically amplified from *N. caninum* DNA, but not from DNA extracted from *T. gondii* or different *Sarcocystis* species. Positive signals in PCR were obtained with as little as 100 pg parasite template DNA. In addition, dual PCR with primer pairs specific for *N. caninum* and *T. gondii* allowed the detection of either parasite in mixed samples.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: DNA Probes; *DNA, Protozoan--analysis--AN; * **Neospora** --genetics--GE; *Polymerase Chain Reaction--methods--MT; **Toxoplasma* --genetics--GE; Base Sequence; Blotting, Southern; Cloning, Molecular; DNA, Protozoan--genetics--GE; Molecular Sequence Data; Sensitivity and Specificity; Sequence Analysis, DNA; Species Specificity

Molecular Sequence Databank No.: GENBANK/X84238

CAS Registry No.: 0 (DNA Probes); 0 (DNA, Protozoan)

Record Date Created: 19961227

Record Date Completed: 19961227

18/9/17 (Item 17 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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Adhesion and invasion of bovine endothelial cells by *Neospora caninum*.

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Parasitology (ENGLAND) Feb 1996, 112 (Pt 2) p183-97, ISSN 0031-1820

Journal Code: 0401121

Document type: Journal Article

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Neospora caninum is a recently identified coccidian parasite which was, until 1988, misdiagnosed as *Toxoplasma gondii*. It causes paralysis and death in dogs and neonatal mortality and abortion in cattle, sheep, goats and horses. The life-cycle of **Neospora** has not yet been elucidated. The only two stages identified so far are tissue cysts and intracellularly dividing tachyzoites. Very little is known about the biology of this species. We have set up a fluorescence-based adhesion/invasion assay in order to investigate the interaction of *N. caninum* tachyzoites with bovine aorta endothelial (BAE) cells in vitro. Treatment of both host cells and parasites with metabolic inhibitors determined the metabolic requirements for adhesion and invasion. Chemical and enzymatic modifications of parasite and endothelial cell surfaces were used in order to obtain information on the nature of cell surface components responsible for the interaction between parasite and host. Electron microscopical investigations defined the ultrastructural characteristics of the adhesion and invasion process, and provided information on the intracellular development of the parasites.

Tags: Animal; Support, Non-U.S. Gov't

Descriptors: Endothelium, Vascular--parasitology--PS; * **Neospora** --pathogenicity--PY; Aorta; Carbohydrates--physiology--PH; Cattle; Cell Adhesion; Cell Membrane--parasitology--PS; Cell Membrane--ultrastructure --UL; Cells, Cultured; Coccidiosis--parasitology--PS; Cytochalasin D --pharmacology--PD; Cytoskeleton--drug effects--DE; Cytoskeleton --physiology--PH; Endothelium, Vascular--cytology--CY; Host-Parasite Relations; **Neospora** --growth and development--GD; **Neospora** --metabolism

--ME; **Neospora** --ultrastructure--UL; Tissue Fixation
CAS Registry No.: 0 (Carbohydrates); 22144-77-0 (Cytochalasin D)
Record Date Created: 19961206
Record Date Completed: 19961206

18/9/18 (Item 18 from file: 155)
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Rapid and sensitive identification of Neospora caninum by in vitro amplification of the internal transcribed spacer 1.

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Neospora caninum and N. caninum-like organisms are cyst-forming coccidian parasites known to cause neuromuscular disorders in dogs and abortion in cattle. In this article we report on the use of the polymerase chain reaction (PCR) for the detection of DNA from N. caninum. After determining the sequence of the internal transcribed spacer 1 (ITS1) of N. caninum and Toxoplasma gondii, and part of the sequences for 4 species of Sarcocystis, we designed a primer set for the amplification of a 279-base-pair fragment of ITS1 from N. caninum. The PCR system made possible the specific detection of 5 N. caninum organisms and no amplification was observed from any of the other cyst-forming coccidia tested, including the closely related T. gondii. Furthermore, we were also able to demonstrate the presence of N. caninum in brain and lung tissue samples from experimentally infected mice. Our data also link the 5.8S rRNA gene for T. gondii and N. caninum to the 16S-like rRNA gene, within the rDNA unit.

Tags: Animal; Female; Support, Non-U.S. Gov't
Descriptors: DNA, Protozoan--genetics--GE; *DNA, Ribosomal--genetics--GE;
* **Neospora** --isolation and purification--IP; *Polymerase Chain Reaction
--methods--MT; Base Sequence; Brain--parasitology--PS; DNA Primers; DNA,
Protozoan--analysis--AN; DNA, Ribosomal--analysis--AN; Lung--parasitology
--PS; Mice; Molecular Sequence Data; **Neospora** --genetics--GE; RNA,
Ribosomal, 16S--genetics--GE; RNA, Ribosomal, 5.8S--genetics--GE;
Sarcocystis--genetics--GE; Sensitivity and Specificity; Sequence Analysis,
DNA; Species Specificity; Toxoplasma--genetics--GE

CAS Registry No.: 0 (DNA Primers); 0 (DNA, Protozoan); 0 (DNA,
Ribosomal); 0 (RNA, Ribosomal, 16S); 0 (RNA, Ribosomal, 5.8S)

Record Date Created: 19961206
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10652939 97001588 PMID: 8844580

Evidence suggesting a point source exposure in an outbreak of bovine abortion due to neosporosis.

McAllister M M; Huffman E M; Hietala S K; Conrad P A; Anderson M L;
Salman M D

California Veterinary Diagnostic Laboratory System, Tulare 93274, USA.
Journal of veterinary diagnostic investigation - official publication of
the American Association of Veterinary Laboratory Diagnosticians, Inc (
UNITED STATES) Jul 1996, 8 (3) p355-7, ISSN 1040-6387

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STIC-ILL

SE-601: 446
Mac

From: Portner, Ginny
Sent: Friday, February 06, 2004 5:06 PM
To: STIC-ILL
Subject: neospora 1645
Importance: High

00829650 Genuine Article#: EZ739 Number of References: 17
Title: ULTRASTRUCTURE OF DEVELOPING ISOSPORA-SUIS IN CULTURED -CELLS
Author(s): LINDSAY DS ; BLAGBURN BL ; TOIVOKINNUNAN M
Corporate Source: AUBURN UNIV, COLL VET MED, DEPT PATHOBIOL, 166 GREENE
HALL/AUBURN//AL/36849; AUBURN UNIV, ALABAMA AGR EXPT STN, DEPT ANIM
HLTHRES/AUBURN//AL/36849
Journal: AMERICAN JOURNAL OF VETERINARY RESEARCH, 1991, V52, N3, P471-473
Language: ENGLISH Document Type: ARTICLE
Geographic Location: USA
Subfile: SciSearch; CC AGRI--Current Contents, Agriculture, Biology &
Environmental Sciences

11260853 PASCAL No.: 94-0079674
Neosporosis
DUBEY J P; LINDSAY D S
U.S. dep. agriculture, Livestock poultry sci. inst., zoonotic diseases
lab., Beltsville MD 20705-2350, USA
Journal: Parasitology today : (Personal ed.), 1993, 9 (12) 452-458
ISSN: 0169-4707 CODEN: PATOE2 Availability: INIST-20872;
354000025969150020
No. of Refs.: 51 ref.
Document Type: P (Serial) ; A (Analytic)
Country of Publication: Netherlands
Language: English

03252444 Genuine Article#: NQ742 Number of References: 26
Title: EVALUATION OF THE SAFETY AND EFFICACY OF VACCINATION OF NURSING RIGS
WITH LIVING TACHYZOITES OF 2 STRAINS OF TOXOPLASMA-GONDII
Author(s): PINCKNEY RD; LINDSAY DS ; BLAGBURN BL ; BOOSINGER TR;
MCLAUGHLIN SA; DUBEY JP
Corporate Source: AUBURN UNIV, COLL VET MED, DEPT PATHOBIOL/AUBURN//AL/36849
Journal: JOURNAL OF PARASITOLOGY, 1994, V80, N3 (JUN), P438-448
ISSN: 0022-3395
Language: ENGLISH Document Type: ARTICLE
Geographic Location: USA
Subfile: SciSearch; CC LIFE--Current Contents, Life Sciences; CC AGRI--
Current Contents, Agriculture, Biology & Environmental Sciences

4470045 Genuine Article#: TF343 Number of References: 13
Title: CANINE CUTANEOUS NEOSPOROSIS - CLINICAL IMPROVEMENT WITH CLINDAMYCIN
Author(s): DUBEY JP; METZGER FL; HATTEL AL; LINDSAY DS ; FRITZ DL
Corporate Source: USDA ARS, INST LIVESTOCK & POULTRY SCI, PARASITE BIOL &
EPIDEMIOLOG LAB, BLDG 1040, RM 104, BARC-E/BELTSVILLE//MD/20705; METZGER
ANIM HOSP/STATE COLLEGE//PA/16801; PENN STATE UNIV, ANIM DIAGNOST
LAB/UNIVERSITY PARK//PA/16802; AUBURN UNIV, COLL VET MED, DEPT
PATHOBIOL/AUBURN//AL/36849; USA, MED RES INST INFECT DIS, DIV PATHOL/FT
DETRICK//MD/21701
Journal: VETERINARY DERMATOLOGY, 1995, V6, N1, P37-43
ISSN: 0959-4493
Language: ENGLISH Document Type: NOTE
Geographic Location: USA

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Evidence suggesting a point source exposure in an outbreak of bovine
abortion due to neosporosis.
McAllister M M; Huffman E M; Hietala S K; Conrad P A; Anderson M L;
Salman M D

Ultrastructure of developing *Isospora suis* in cultured cells

David S. Lindsay, PhD; Byron L. Blagburn, PhD; Maria Toivio-Kinnucan, PhD

SUMMARY

The ultrastructure of *Isospora suis* sporozoites, type-1 meronts, and type-1 merozoites was examined, using transmission electron microscopy of infected cultured cells. The ultrastructure of sporozoites and type-1 merozoites was similar. Each possessed trimembranous pellicles, subpellicular microtubules, a conoid, anterior and posterior polar rings, rhoptries, micronemes, a single vesicular nucleus, tubular mitochondria, Golgi complexes, ribosomes, endoplasmic reticula, inactive micropores, amylopectin bodies, lipid bodies, dense bodies, and crystalloid bodies. Merozoites were produced by endodyogeny. Ultrastructural events associated with merozoite production by type-1 meronts are described.

Neonatal coccidiosis caused by *Isospora suis* is a common problem in swine production facilities. Diarrhea, dehydration, and weight loss are common in infected suckling pigs.¹⁻³ Morbidity is high, but coccidia-associated mortalities are low. Development of *I. suis* in pigs progresses through 2 structurally distinct types of meronts.^{2,4} Type-1 meronts are binucleate and divide to form 2 merozoites, whereas type-2 meronts are multinucleate and divide to form many merozoites. Gametogenesis follows these asexual cycles. We have grown *I. suis* in cultured cells and found in vitro development of the parasite to be limited primarily to development of sporozoites to type-1 meronts and production of type-1 merozoites.⁵ The purpose of the study reported here was to determine the structure of *I. suis* sporozoites, type-1 meronts, and type-1 merozoites by use of transmission electron microscopy.

Materials and Methods

Preparation of parasites and inoculum—Oocysts of *I. suis* were collected from the feces of experimentally infected pigs. The oocysts were sporulated, cleaned of debris, and stored as described.^{1,4} Sporozoites were obtained from surface-sterilized sporulated oocysts,^{6,7} counted in a hemacytometer, and resuspended in cell culture maintenance media for inoculation onto monolayers.

Cell cultures and sporozoite inoculation—Bovine monocytes, primary porcine kidney cells, and primary fetal bovine kidney cells were grown and maintained as described.^{5,8} The bovine monocytes were grown in 25-cm²

plastic flasks,^a whereas the primary porcine kidney and primary fetal bovine cells were grown in 8-well tissue culture chamber slides.^b Ultrastructure of sporozoites was examined in bovine monocyte cells 4 and 14 hours after the cells were inoculated with 2.5×10^6 sporozoites. Ultrastructure of type-1 meronts and merozoites was examined in primary porcine kidney and primary fetal bovine cells 36, 48, and 72 hours after the cells were inoculated with 1.5×10^6 sporozoites.

Transmission electron microscopy—Inoculated bovine monocyte cells were scraped into cell culture maintenance media and pelleted by centrifugation. Pellets were fixed in 2% (v/v) glutaraldehyde in Millonig buffer (pH 7.4) for 24 hours at 4 C, washed in Millonig buffer, fixed

^a Corning Glass Works, Corning, NY.

^b Miles Laboratories, Naperville, Ill.



Figure 1—Transmission electron micrographs of *Isospora suis* merozoites in cultured cells.

A—Merozoite with conoid (CN), rhoptries (Rp), crystalloid body (CB), amylopectin bodies (AB), and a micropore (Mp). Notice that the merozoite is in a parasitophorous vacuole (PV) and that the rhoptries extend into the posterior portion of the parasite. Bar = 1.0 μ m.

B—Merozoite with outer pellicular membrane (OM), a middle pellicular membrane (MM), and an inner pellicular membrane (IM). Notice the anterior (AP) and posterior (PP) components of the anterior polar rings, the subpellicular microtubules (MT), and the conoid (CN). Bar = 0.1 μ m.

C—Merozoite with rhoptries (Rp), long rhoptrie ducts (RD), micronemes (MI), and a conoid (CN). Bar = 1.0 μ m.

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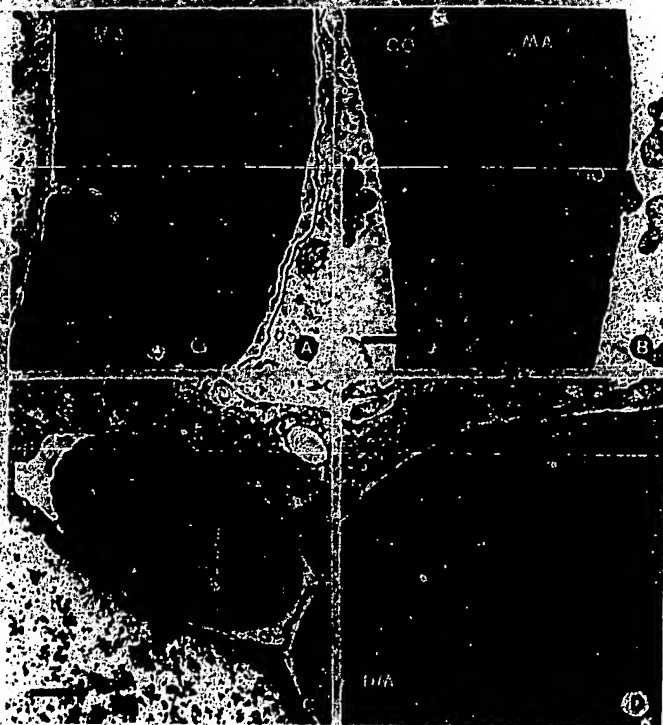


Figure 2—Transmission electron micrographs of developing *Isospora suis* meronts in cultured cells.

A—Meront with a dividing nucleus (DN). Notice merozoite anlagen (MA). Bar = 1.0 μ m.

B—Merozoite anlagen (MA) developing in association with the Golgi complex (GO). Two GO are in view. Bar = 1.0 μ m.

C—Cross section of a meront with 2 developing merozoites (DM). Bar = 1.0 μ m.

D—Meront with mother meront inner membrane complex (MMC) being replaced by the developing merozoite membrane complex (DMC). Notice the 2 developing merozoites (DM). Bar = 1.0 μ m.

in 1% osmium tetroxide; dehydrated in a series of ethanols, passed through 2 changes of propylene oxide, and embedded in Spurr resin.⁸ Thin sections were stained with uranyl acetate and lead citrate before examination with a transmission electron microscope⁴ operating at 60 kV. The primary porcine kidney and primary fetal bovine kidney cells were fixed directly on the chamber slide and processed as described for transmission electron microscopy.⁹

Results

Intracellular *I. suis* of all stages were in parasitophorous vacuoles, in most cases adjacent to the host cell nucleus. Host cell type did not influence the ultrastructure of the developing parasites. Ultrastructure of sporozoites was similar to that of type-1 merozoites; therefore, a common description will be given. A trimembranous pellicle enclosed the subcellular components of the organisms (Fig 1). The outermost membrane enclosed the entire parasite, whereas the inner 2 membranes were closely apposed and formed an inner membrane complex. The inner membrane complex originated as anterior polar rings at the anterior end and terminated as the posterior polar ring in the posterior portion of the parasite. An inactive micropore was detected in the pellicle of some parasites. The

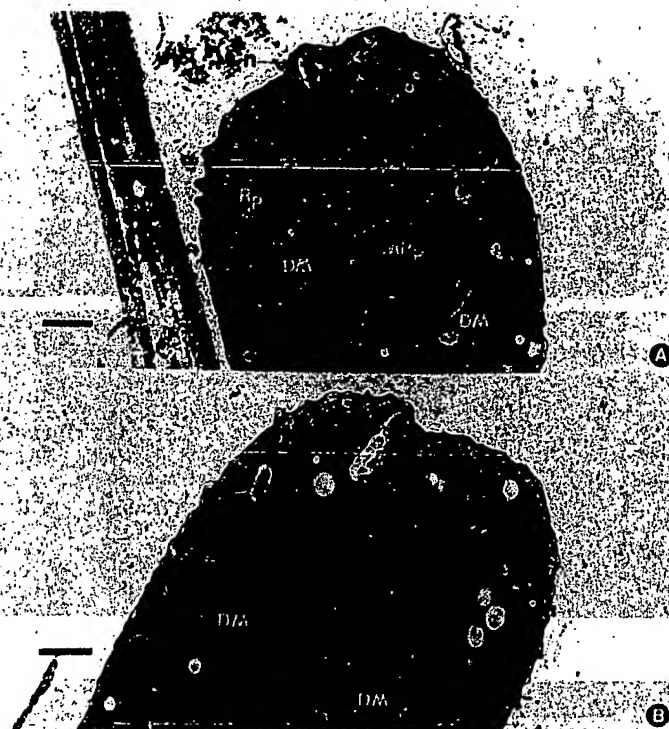


Figure 3—Transmission electron micrographs of *Isospora suis* meronts in cultured cells.

A—Meront with developing merozoites (DM). Notice that the mother meront retains a conoid (CN) and rhoptries (Rp) and developing merozoite has already formed rhoptries (MRp). Bar = 1.0 μ m.

B—Different section of meront in Figure 3A. Notice conoid (MCn) in developing merozoite (DM). Bar = 1.0 μ m.

micropore was formed by a continuous invagination of the outermost membrane and partial invagination of the inner membrane complex. The inner membrane complex was thickened at its termination point, giving it the appearance of a collar. Subpellicular microtubules were directly beneath the innermost membrane of the inner membrane complex and extended to the posterior half to two-thirds of the organism. About 24 subpellicular microtubules were detected. The conoid was composed of spirally arranged tubules. The ducts of rhoptries and conoid-associated microtubules were in the center of the conoid. The ducts of rhoptries were thin and elongated. Numerous rhoptries and micronemes were observed in the cytoplasm. These structures were concentrated in the anterior end of the organism, but some also were seen in the center and posterior regions of the parasites. Connections between micronemes and rhoptries were common. Numerous amylopectin granules and fewer lipid bodies, electron dense bodies, and membranous vesicles were scattered throughout the cytoplasm. Crystalloid bodies were observed in the anterior and posterior portions of the parasites. The crystalloid bodies usually did not appear to be membrane bound. A tubular mitochondrion was detected as were a Golgi complex and smooth and rough endoplasmic reticula. The nucleus was vesicular and located in the central or posterior portion of the parasite. The nucleolus usually was eccentrically positioned in the nucleus.

Merozoite formation was by endodyogeny (Fig 2). The Golgi complex divided, and merozoite anlagans developed in close association with the newly formed Golgi com-

⁸ Polysciences Inc, Warrington, Pa.

⁴ Philips Electronic Instruments Co, Norcross, Ga.



Figure 4—Transmission electron micrograph of newly formed *Isospora suis* merozoites in cultured cells. The nucleus of each merozoite has an eccentrically placed nucleolus (Nu). Notice prominent crystalloid bodies (CB) and residual body (RB). Bar = 1.0 μ m.

plexes. Early nuclear division was noted when the host cell nucleus assumed a horseshoe shape. After nuclear division, each nucleus migrated into the body of a developing merozoite. The conoid, rhoptries, and micronemes of the merozoites also were forming at this time and developed in association with the merozoite anlagen. Eventually, all organelles of the merozoite were reformed or incorporated into developing merozoites and were surrounded by membranes that were extensions of the merozoite anlagen. The mother meront retained its conoid and rhoptries well into merozoite formation, and serial sections revealed some mother meronts with intact conoids and rhoptries coincident with progeny merozoites that also had these organelles (Fig 3). The inner membrane complex of the mother meront degenerated and was replaced with the membranes of the developing progeny merozoites as they matured. Two progeny merozoites were produced (Fig 4). A residual body was formed in some instances. Meronts with more than 2 nuclei were not seen in this study.

Discussion

Endodyogeny is a common mode of replication in isosporid coccidia including *Toxoplasma gondii*,¹⁰ *Hammon-*

dia hammondi,¹¹ *H heydorni*,¹² and several *Isospora* species.^{3,13,14} It has also been observed in *Neospora caninum*.¹⁵ The events observed during endodyogeny in our study of *I suis* were similar to those observed in other species.¹⁰⁻¹⁵ Crystalloid bodies in the sporozoites and merozoites of *I suis* appeared similar to those in *Hammondia* species.^{11,12} Crystalloid bodies have not been reported in *T gondii*,^{10,16} or *N caninum*.¹⁵ The function of crystalloid bodies is not known, but they probably are involved in parasite metabolism. We observed rhoptries of *I suis* in the anterior and posterior portions of the parasites. A similar distribution of rhoptries has been reported for *H heydorni*.¹²

We noticed an intact apical complex (conoid and rhoptries) in mother meronts of *I suis*, many of which were in an advanced stage of development. Type-1 meronts have been shown to be motile and able to penetrate cells in vitro and in vivo.^{3,7,17} The finding of an intact apical complex in these meronts probably explains why they are able to penetrate cells. The ability to penetrate cells, even in an advanced state of development, precludes entrapment in a single host cell. Should the original host cell become unsuitable for development, the parasite may enter a viable cell and continue development. This prolonged motility of meronts may allow for more host cells to be injured during replication of *I suis* and may contribute to the pathogenesis of *I suis*-induced disease.

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California Veterinary Diagnostic Laboratory System, Tulare 93274, USA.
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Neosporosis as a cause of equine protozoal myeloencephalitis.

Marsh A E; Barr B C; Madigan J; Lakritz J; Nordhausen R; Conrad P A

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Veterinary Medicine, University of California, Davis 95616-8745, USA.

Journal of the American Veterinary Medical Association (UNITED STATES)

Dec 1 1996, 209 (11) p1907-13, ISSN 0003-1488 Journal Code: 7503067

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Experimental neosporosis in pregnant ewes and their offspring.

McAllister M M; McGuire A M; Jolley W R; Lindsay D S; Trees A J; Stobart
R H

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Sciences, Laramie, USA.

Veterinary pathology (UNITED STATES) Nov 1996, 33 (6) p647-55,
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2/9

Neosporosis as a cause of equine protozoal myeloencephalitis

Antoinette E. Marsh, MS, Bradd C. Barr, DVM, PhD, John Madigan, DVM, MS, Jeffrey Lakritz, DVM, PhD, Robert Nordhausen, MA, Patricia A. Conrad, DVM, PhD

- In addition to *Sarcocystis neurona*, *Neospora* organisms may be a causative agent of equine protozoal myeloencephalitis.
- Closely related parasites, such as *S. neurona* and *Neospora* sp., must be differentiated on the basis of immunoblot analysis.
- Definitive diagnosis of the causative agent of equine protozoal myeloencephalitis only can be made by means of postmortem immunohistochemical examination for determination of protozoal parasites.

An 11-year-old Quarter Horse gelding was referred to the veterinary medical teaching hospital. The owners reported that the horse had had slight incoordination for 3 months that was most pronounced when the horse was forced to move backward. The horse had not received medication and was otherwise in good health. It was housed on a 3-acre grass pasture, was fed oat/alfalfa hay supplemented with grain and vitamins, and regularly received vaccinations and anthelmintics. Another horse on the premises was clinically normal. One week prior to referral, the horse described here developed urinary incontinence and incoordination.

At physical examination, the horse had ataxia and dysmetria of the hind limbs. Gait abnormalities were accentuated when the horse was walked with its head held in an elevated position or when it was walked in a circle. There was a decrease in tail tone, and cutaneous sensation was not evident in the perineal region. Cranial nerve and cortical function were considered normal. The horse dribbled urine intermittently. After a catheter had been inserted to facilitate removal of urine, palpation of the bladder per rectum revealed a large amount of urinary sediment. On the basis of the clinical evaluation, a diagnosis of myelopathy was made. Cerebrospinal fluid collected from the lumbosacral space was submitted for cytologic analysis, biochemical analysis, and testing for *Sarcocystis neurona* antibodies. The *S. neurona* antibody testing was performed in a commercial laboratory and in a research

laboratory of 1 of the authors (PAC). Samples of CSF and serum also were submitted to a diagnostic laboratory for determination of components of the CSF albumin-IgG indices (comparisons of concentrations of serum IgG and albumin to concentrations of CSF IgG and albumin). Immunoglobulin concentrations and results for the serum biochemical analysis were within reference ranges. Results of the CSF analysis were within reference ranges except for a high protein concentration (88 mg/dl; reference range, 0 to 80 mg/dl). In the CSF, there were moderate numbers of large mononuclear cells with irregular nuclei and small vacuoles as well as other cells (20 nucleated cells/ μ l), but RBC were not detected. The CSF albumin-IgG indices (serum IgG, 1,980 mg/dl; CSF IgG, 15.2 mg/dl; serum albumin, 3,400 mg/dl; CSF albumin, 57.2 mg/dl; albumin quotient, 1.68; and IgG index, 0.46) were indicative of an increase in intrathecal production of IgG with normal blood-CSF barrier permeability. On the basis of the clinical examination results, a poor prognosis for recovery was given, unless intensive medical treatment was attempted. It was a strong possibility that the horse had equine protozoal myeloencephalitis (EPM), and the owners elected to have the horse euthanatized. The cadaver was donated for use in a study on *S. neurona*.

A complete necropsy was performed. Portions of the brain were submitted for rabies testing and parasite isolation. Gluteal muscles were moderately atrophied. The bladder was distended, had diffuse transmural hemorrhages, contained a large aggregate of fine sand-like urinary calculi, and had focal mucosal erosions. The brain and spinal cord were grossly unremarkable. Numerous transverse sections of spinal cord from the cervical, thoracic, and lumbar regions were removed aseptically and examined for visible lesions and then were placed in an antibiotic/NaCl solution for parasite isolation. Adjacent tissue sections were fixed in neutral-buffered 10% formalin, routinely processed, and stained (H&E) for light microscopic examination.

A single small focus of gliosis with 1 to 2 mild lymphocytic perivascular cuffs was detected in the cranial portion of the brain stem. In the medulla, there were multiple random foci marked by varying degrees of mixed mononuclear inflammatory cell infiltrates with accompanying focal parenchymal vacuolation and axonal degeneration and loss that progressed in some instances to focal malacia. Mononuclear cell infiltrates consisted of macrophages, multinucleate giant cells, numerous lymphocytes, and scattered plasma cells. The largest of these inflammatory foci was located along the periphery of the white matter of the medulla. A few clusters of protozoal zoites were found associated with these inflammatory foci. Zoites were ran-

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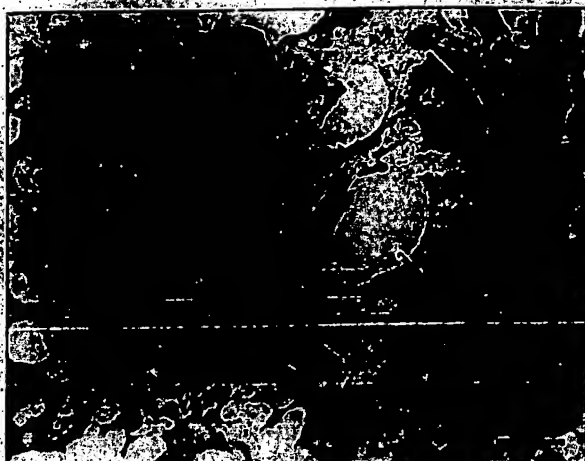


Figure 1—Photomicrograph of the inflammatory lesion from the spinal cord of a horse with equine protozoal myeloencephalitis. Notice a single cluster of protozoal tachyzoites (arrowheads) and a small vessel that is surrounded by lymphocytes and plasma cells (arrows). Multinucleate giant cells (g) were infrequently seen in these inflammatory foci. H&E stain; bar = 10 μ m.

domly oriented within these clusters. Rosette formation, a characteristic usually associated with infection with *Sarcocystis* sp, was not evident.

Throughout the sections of spinal cord were numerous inflammatory foci similar to those described for the medulla. These foci of inflammation were located almost entirely along only the periphery of the spinal cord white matter. In many instances, the mononuclear cell infiltrates extended out from the white matter into the adjacent leptomeninges. Numerous clusters of zoites or small tissue cysts were found within these foci of inflammation (Fig. 1).

Three septate protozoal tissue cysts were found in skeletal muscle. Metrocytes were evident along the inner aspect of these cyst walls, and there was a thick cyst wall with peripherally extending projections or striations. These tissue cysts were typical of *Sarcocystis* sp.

Immunohistochemical examination was performed on selected sections of brain and spinal cord to detect and identify parasites, using polyclonal antisera raised against *Toxoplasma gondii*⁴ (ME 49) sporulated oocysts and *Neospora* sp (BPA 1) tachyzoites.² Polyclonal antiserum against *S. neurona* was used,² but applied at an optimal dilution of 1:1,600.

Sarcocystis neurona antiserum was produced by administering parasites from an isolate (UCD 1) over a 112-day period to a rabbit. The inoculate did not contain an adjuvant. Parasites were obtained by pooling parasites from infected cell culture monolayers and the supernate from infective material contained in tissue culture flasks, which contained a large number of free merozoites that were used in the inoculate. Parasites were grown in monolayers derived from various mammalian species for each inoculating dose. Four days after the final parasite dose was administered, the rabbit was anesthetized and exsanguinated. Serum from the rabbit was tested for its reactivity to *S. neurona* merozoites as well as other *Sarcocystis* parasites, *Neospora* sp and *T. gondii* RH tachyzoites and bradyzoites, and to *S. cruzi*, and *S. muris* in formalin-fixed tissues from naturally and experimentally infected animals.

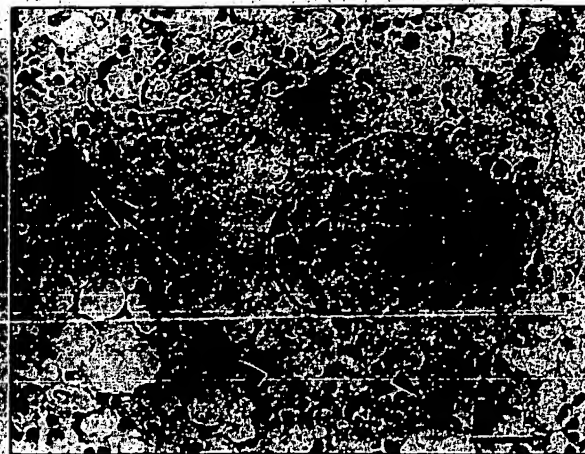


Figure 2—Photomicrograph of a section of inflamed spinal cord after immunohistochemical staining by use of *Neospora* sp antiserum reveals several darkly stained tachyzoite clusters (arrowheads) and 1 tissue cyst (arrow) that have had strong positive reactions with the antiserum. *Neospora* sp antiserum with aminoethylcarbazole chromogen and Mayer's hematoxylin counterstain; bar = 30 μ m.

Clusters of protozoal tachyzoites and tissue cysts containing bradyzoites in sections of the spinal cord had a strongly positive reaction with polyclonal antiserum developed against the bovine *Neospora* sp tachyzoites (Fig. 2). The tachyzoites and bradyzoites reacted weakly with the anti-*T. gondii* serum, but did not react with the *S. neurona* antiserum.

Antigens for immunoblot analysis were prepared using *S. neurona* merozoites and bovine *Neospora* tachyzoites harvested from flasks containing a large number of free merozoites (*S. neurona*) or at least 75% parasite-infected cells (*Neospora* sp). Solubilized proteins of the tachyzoites, merozoites, and cells submitted for testing were separated by sodium dodecyl sulfate polyacrylamide gel electrophoresis in 0.75-mm vertical, 15% continuous gradient, 8 X 10-cm polyacrylamide gels.¹⁴ Approximately 10 μ g of protein was loaded per lane. Prestained molecular weight standards¹⁵ were included with each gel.

After electrophoretic separation, proteins were transferred to a nitrocellulose membrane.⁶ Membranes were blocked with 5% w/vol dried nonfat milk powder in Tris-buffered saline containing 0.05% Tween 20 (TBS-T)⁶ for 1 hour. After being rinsed 1 time with TBS-T, the membranes were rocked gently for 5 hours at room temperature (22 to 25 C) with serum or CSF samples obtained from the affected horse at the time of necropsy. Serum samples from horses with confirmed *S. neurona* infections, determined on the basis of detection of parasites by use of immunohistochemical analysis,⁶ were used as positive controls for *S. neurona* antibodies. Serum and CSF samples from horses that did not have detectable EPM lesions (determined on the basis of extensive histologic examination) were used as negative controls. Polyclonal antiserum from

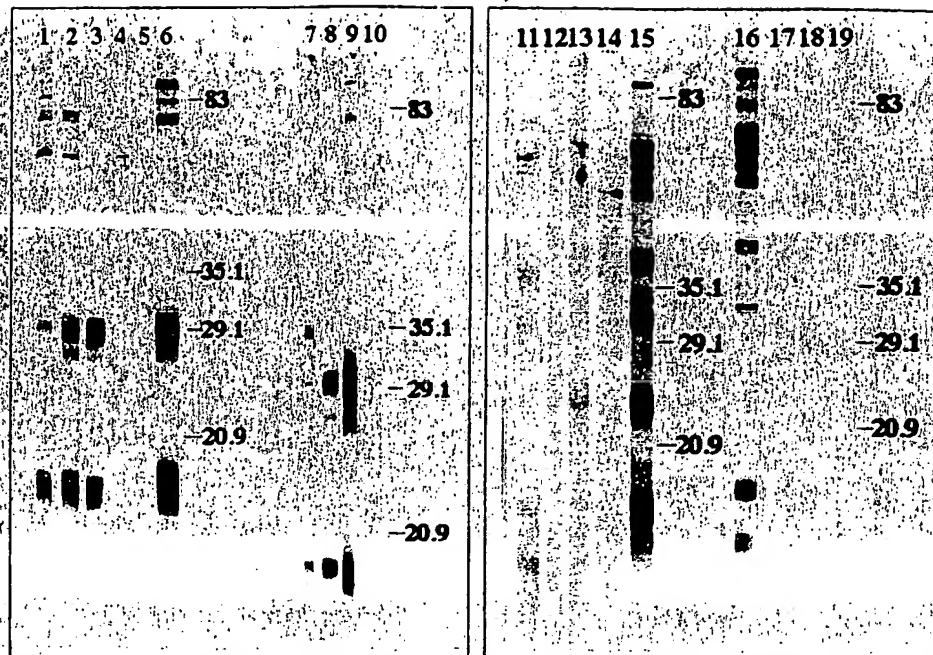


Figure 3—Western blot analysis of serum and CSF samples, each of which was reacted with *Sarcocystis neurona* antigens (lanes 1 through 10; left) or *Neospora* sp antigens (lanes 11 through 19; right). Molecular weights (kd) are indicated to the right of each set of samples. Lanes 1 through 6, serum samples (lane 1, *Neospora*-infected horse described here; lane 2, *S. neurona*-infected horse; lane 3, another *S. neurona*-infected horse; lane 4, *S. neurona*-negative control horse; lane 5, rabbit inoculated with *Neospora* sp; lane 6, rabbit inoculated with *S. neurona*); lanes 7 through 10, CSF samples (lane 7, *Neospora*-infected horse described here; lane 8, *S. neurona*-infected horse; lane 9, another *S. neurona*-infected horse; lane 10, *S. neurona*-negative control horse); lanes 11 through 15, serum samples (lane 11, *Neospora*-infected horse described here; lane 12, *S. neurona*-infected horse; lane 13, another *S. neurona*-infected horse; lane 14, *S. neurona*-negative control horse; lane 15, rabbit inoculated with *Neospora* sp); and lanes 16 through 19, CSF samples (lane 16, *Neospora*-infected horse described here; lane 17, *S. neurona*-infected horse; lane 18, another *S. neurona*-infected horse; lane 19, *S. neurona*-negative control horse). Serum and CSF from the *S. neurona*-infected horses and the rabbit polyclonal *S. neurona* antiserum strongly reacted to 2 immunodominant *S. neurona* protein bands of approximately 12 and 29 kd. Serum from the *Neospora*-infected horse of our report had a similar, but slightly weaker, reaction. The rabbit polyclonal *Neospora* antiserum had faint reactivity to the *S. neurona* protein band of approximately 29 kd. The CSF from the *Neospora*-infected horse described here reacted to a number of *S. neurona* proteins, including the 12- and 29-kd proteins. For the *Neospora* proteins, 8 distinct bands were recognized by the serum from the *Neospora*-infected horse described in this report, whereas the *S. neurona*-infected horses and the *S. neurona*-negative control horse had faint reactivity to various molecular weight proteins. The rabbit polyclonal *Neospora* antiserum had a strong, distinctive immunoreactivity pattern.

rabbits given multiple inoculations of *S. neurona* merozoites or *Neospora* sp tachyzoites also served as controls for differentiation of specific parasite proteins. Samples from the horses were diluted at 1:20 (CSF) and 1:500 (serum) in TBS-T containing 1% fish gelatin. This was followed by 3 washes in TBS-T. The secondary antibody, rabbit anti-horse IgG (heavy & light) labeled with horseradish peroxidase, was diluted at 1:500 in TBS-T containing 1% fish gelatin and then was used according to manufacturer's directions. Polyclonal rabbit antiserum was used at 1:1,000, and goat anti-rabbit IgG (heavy & light) labeled with horseradish peroxidase was used as the secondary antibody. Diaminobenzidine substrate with nickel ion enhancement was used for color development of the immunoblots.

Serum and CSF samples from the horse described here that were submitted to the commercial laboratory had positive results when tested for *S. neurona* antibodies. At the author's research laboratory, serum and CSF from the affected horse were tested for immunoreactivity to *S.*

neurona and *Neospora* sp antigens. Results were compared with those for known *S. neurona*-infected horses and to rabbit polyclonal antisera developed against *S. neurona* and *Neospora* sp (Fig 3). Serum from the affected horse had a similar, but slightly weaker, banding pattern to *S. neurona* antigens, compared with sera from horses with confirmed *S. neurona* infections and from the rabbit immunized with *S. neurona* merozoites. Serum from *S. neurona*-negative horses did not react to the *S. neurona* proteins. Serum from the rabbit immunized with *Neospora* sp tachyzoites had faint reactivity to a protein of approximately 29 kd. There were several additional higher molecular weight proteins (> 50.6 kd) that were recognized in all of the serum samples; however, much of this reactivity disappeared when a shorter incubation time (1 hour) was used, leaving only 2 broad bands of approximately 12 and 29 kd that were evident in tests on sera from the affected horse, the *S. neurona*-infected horses, and the rabbit inoculated with *S. neurona* (data not shown). The CSF from the affected horse reacted to a number of *S. neurona* proteins; however, only 2

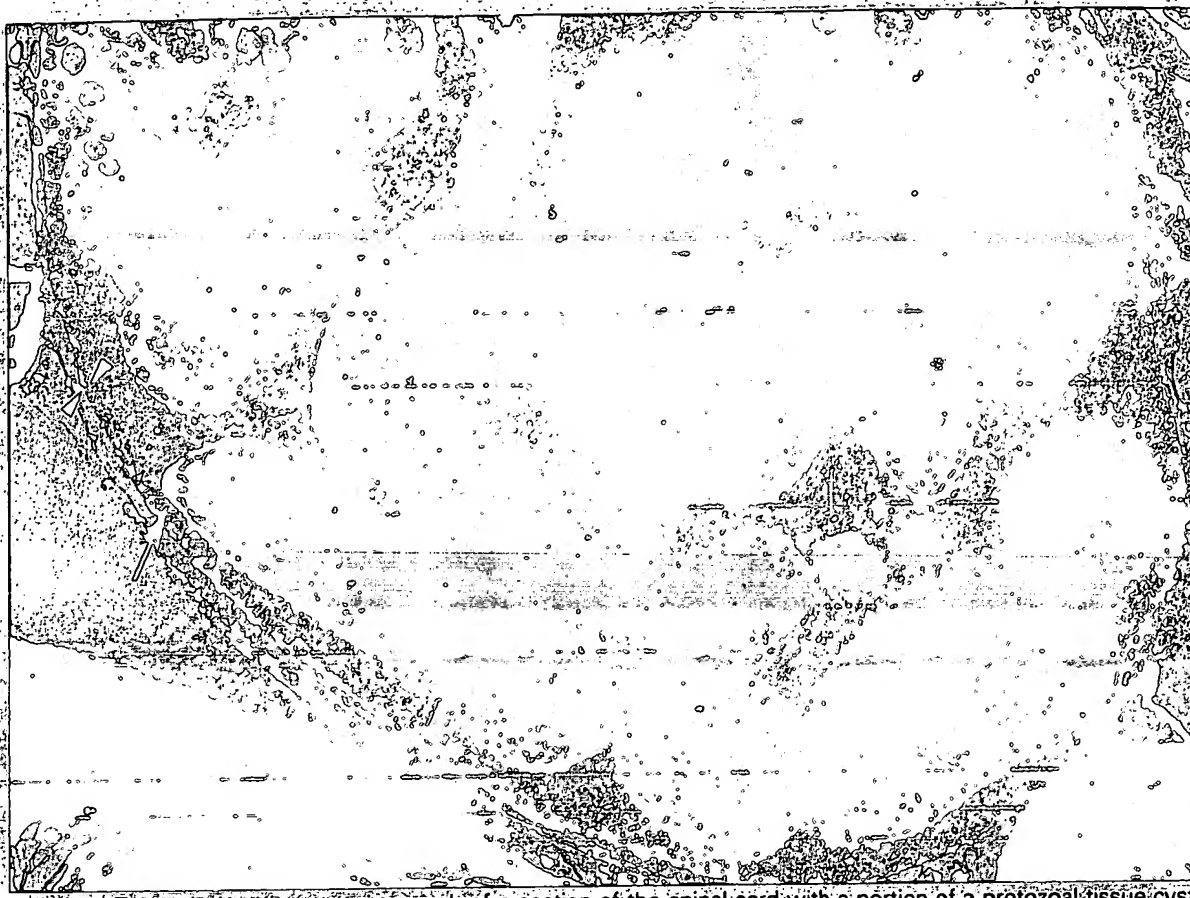


Figure 4—Transmission electron micrograph of a section of the spinal cord with a portion of a protozoal tissue cyst. Myelin whirls (M) are visible around this tissue cyst. The tissue cyst wall consists of an outer parasitophorous membrane. There is a variably sized granular layer beneath this membrane, which is composed of small vesicles or granules (arrowheads). Numerous vesicles or small granules with larger tubulovesicular profiles are seen throughout the matrix substance between bradyzoites. An apical complex is visible in 2 bradyzoites (arrows) with profiles of rhoptries (r) that are filled with a uniform electron-dense material. Several micronemes, which appear as small dense rods, often are oriented in rows parallel to the pellicle of the bradyzoites (*). Several round electron-dense granules are visible in the bradyzoites. Bar = 1 μ m.

immunodominant protein bands of approximately 12 and 29 kd had the same molecular weight as those recognized in the *S. neurona*-infected horses. These bands were not recognized in CSF obtained from the *S. neurona*-negative control horse. Consequently, the affected horse described here also would have been considered positive for *S. neurona*-specific CSF antibodies had the *Neospora* immunoreactivity testing not been performed in the author's laboratory.

Serum from the affected horse described here reacted with 8 distinct protein bands of *Neospora* sp. Serum from *S. neurona*-infected horses did not react to any of the same molecular weight *Neospora* proteins as did serum from the affected horse. The rabbit *S. neurona* antiserum did not react to any *Neospora* proteins (data not shown). Cerebrospinal fluid from the affected horse had a distinct strong pattern of reactivity to 16 *Neospora* proteins that had molecular weights ranging from approximately 11 to 104 kd. This pattern of antibody reactivity was similar to that seen with the rabbit *Neospora* antiserum. The CSF from the *S. neurona*-infected horses and the *S. neurona*-negative control horse did not react to any of the *Neospora* antigens.

One-millimeter cubes of formalin-fixed spinal cord were taken from the complimentary cut faces of tissue sections in the areas determined by means of light microscopy to have inflammatory lesions. These cubes were processed and used for transmission electron microscopy. A total of 73 bradyzoite profiles in 5 tissue cysts and 18 tachyzoite profiles within 4 clusters were located in sections of white matter from the spinal cord. Bradyzoites were surrounded by a cyst wall consisting of an outer parasitophorous membrane with a broader inner granular layer composed of numerous small vesicles or granules (Fig 4). In the ground substance of the tissue cysts, there also were scattered small tubulovesicular structures, a few of which could be seen extending up to the outer plasmalemma of the bradyzoites.

Sections of the unfixed spinal cord and brain remained at 4°C in antibiotic/NaCl solution (0.85% w/vol NaCl containing 1,000 U of penicillin G/ml and 100 μ g of streptomycin/ml) while testing for rabies virus was completed. The tissues then were washed and prepared, as reported elsewhere,⁸ in a laboratory in which only *S. neurona* and *Babesia* sp⁹ parasites had

been propagated. Additional tissue homogenates were processed without the use of trypsin. Trypsinized and nontrypsinized homogenized tissue were inoculated into flasks containing confluent monolayer cultures of bovine monocytes (M617)¹⁰ and deer testis cells grown in protozoal media consisting of Dulbecco's minimum essential medium supplemented with 10% vol/vol heat-inactivated fetal bovine serum, 2 mM L-glutamine, 50 U of penicillin G/ml, and 50 µg of streptomycin/ml. On day 45 after inoculation with trypsinized brain stem tissue homogenate, maturing clusters of tachyzoites were evident in the deer testis cells. Parasites were not isolated from the spinal cord tissue homogenates. In a Giemsa-stained centrifuged preparation of the culture supernate, free tachyzoites (n = 5) had a curved appearance and were approximately 1.8 to 3.0 µm wide and 4.0 to 7.0 µm long. Nucleic acid analysis of the culture-derived tachyzoites using polymerase chain reaction and subsequent probe hybridization were recognized by the *Neospora*-specific probe, but not the *T gondii*- or *S neurona*-specific probes.^{6,11,12}

Fatal neurologic disease in horses attributed to an unknown *Toxoplasma*-like protozoan was first described in 1974.¹³⁻¹⁶ Subsequently, the protozoal agent, *S neurona*, was isolated from several horses with EPM.^{17,20} In most instances, a presumptive postmortem diagnosis of EPM is made on the basis of an antibody titer to *S neurona* in the CSF or characteristic histologic lesions consisting of random focal perivascular mixed mononuclear cell infiltrates with or without malacia and necrosis in the brain stem or spinal cord.²¹⁻²³ Because clinical neurologic disease attributable to other Apicomplexan parasites has not been identified in horses, clinical signs and characteristic histopathologic lesions consistent with EPM are generally attributed to *S neurona* infection, even when parasites have not specifically been identified. However, similar lesions are commonly seen with other closely related protozoal agents, such as *Neospora* sp, *T gondii*, and *Sarcocystis* sp, that infect the CNS of animals.²⁴

Neospora caninum was first identified in a litter of puppies with encephalomyelitis,²⁵ and naturally developing neonatal or fetal infections caused by *Neospora*-like protozoa have been described in cattle, deer, goats, and sheep.^{8,26-28} A *Neospora* isolate has not been previously cultured from horses, and neosporosis only has been documented in a limited number of horses, such as an aborted equine fetus,²⁹ a 10-year-old horse with visceral neosporosis,³⁰ and an immunosuppressed horse with hyperadrenocorticism and encephalomyelitis.³¹

To our knowledge, the information provided here is the first report of isolation and molecular characterization of a *Neospora* sp isolated from a horse. The only report of *Neospora*-induced encephalomyelitis in a horse was described for a horse that had concurrent hyperadrenocorticism and *Neospora*-induced myeloencephalitis.³¹ It is likely that steroid concentrations in that horse induced an immunocompromised state and increased its susceptibility to neosporosis, similar to experimentally infected laboratory animals that have been immunosuppressed with corticosteroids.³² On the basis of the history or clinical and laboratory findings,

there were no indications that the affected horse described in our report was immunosuppressed.

Furthermore, to our knowledge, the horse described here is the first report of neosporosis in a horse that was clinically diagnosed as having EPM, a disease that previously has been attributed only to *S neurona* infections. Serologic evidence from the commercial laboratory's western blot test and results from the author's laboratory would indicate that the horse was coinfecting with *Neospora* sp and *S neurona* or that antibodies produced from the *Neospora* infection cross-reacted to *S neurona* parasite antigens. Coinfection with *S neurona* cannot be ruled out, because an estimated 30% of the horses in the United States are seropositive and thus are thought to have been exposed to *S neurona*.²³ However, another possibility was that antibodies were produced to *Neospora* sp that cross-reacted with *S neurona* antigens. This would explain the western blot antigen banding pattern seen in serum from the rabbit inoculated with *Neospora* tachyzoites and in the CSF from the affected horse, both of which had faint-to-moderate reactivity to *S neurona*. In contrast, however, cross-reactivity to *Neospora* antigens in serum from the *S neurona*-infected rabbit or *S neurona*-infected horses was not evident. Similarly, rabbit *S neurona* antiserum did not react to *N caninum* antigens when tested by use of the indirect fluorescent antibody test.³³ The CSF from the *S neurona*-infected horses did not react to the *Neospora* antigens, whereas CSF from the affected horse strongly reacted to *Neospora* proteins. The pattern of reactivity was similar to that of the *Neospora*-inoculated rabbit. This suggested that horses with neosporosis may have a false-positive reaction on the western blot assay for *S neurona*, but that *Neospora*-infected horses can be specifically identified when they also are tested for reactivity to *Neospora* antigens.

Finally, analysis of the CSF albumin-IgG indices indicated that the integrity of the blood-brain barrier was still intact and that the antibodies detected were produced by a specific local intrathecal humoral response to *Neospora* parasites in the CNS of the affected horse. The CSF of the affected horse had a weaker antibody reaction pattern to *S neurona* than those of horses with confirmed *S neurona* infections. This weak reaction may explain the positive result for *S neurona* on the western blot analysis of CSF reported by the commercial laboratory. It was noteworthy that the *S neurona* proteins recognized in the *S neurona*-infected horse were of molecular weights that differed from those reported in another study.³⁴ The difference in molecular weight may reflect that differing methods were used to prepare and separate the proteins and perform the western blot analysis.

Parasites found within the sections of spinal cord were compatible with *Neospora* sp as determined on the basis of morphologic examination by means of light and transmission electron microscopy as well as by their specific reactivity on immunohistochemical analysis.^{25,35} By means of immunohistochemical analysis, all the protozoa seen in association with lesions in the CNS tissue of the affected horse described here reacted strongly to the *Neospora* antiserum. Antiserum

developed against *T. gondii* reacted weakly with the parasites, whereas the antiserum to *S. neurona* did not react with the parasites in the tissues of the affected horse. This pattern of immunoreactivity is typical of *Neospora* sp.³⁵ Although *S. neurona* may have been in the CNS, they were not seen or isolated in our analysis.

On ultrastructural examination, the parasites had features compatible with Apicomplexan parasites.^{36,37} Morphologic features that would exclude merozoites from *Sarcocystis* organisms included rhoptries and a membrane-bound parasitophorous vacuole surrounding the zoites.^{35,37} The ultrastructural features distinctive for *Neospora* zoites included the uniform electron-dense staining pattern of rhoptries, compared with the spongy pattern described for *T. gondii*, evidence of several electron-dense granules cranial and caudal to the tachyzoite nuclei, and micronemes oriented parallel or perpendicular to the pellicle of the zoites.^{25,35,37-39} The ultrastructure of the protozoal cysts in the CNS also were compatible with *Neospora* sp, although the cyst walls were relatively thinner in width, compared with cysts reported in other ultrastructural characterization studies.^{35,38} *Sarcocystis neurona* organisms reportedly do not form cysts in the CNS of infected horses.

The in vitro techniques we used to isolate the parasite from the affected horse described here were identical to those used to isolate *Neospora* organisms from aborted fetuses of cattle,⁹ except for the additional evaluation of deer testis cell monolayer cultures, which have proven to be valuable for the isolation of *S. neurona* from CNS tissues of horses. Deer testis and M617 cells are large, slow growing, monolayer cells that allow for easier visual detection of dividing tachyzoites than Vero cells, which often are used to grow *Neospora* and *T. gondii* tachyzoites.

Molecular characterization of the *Neospora* isolate was similar to the *Neospora* parasites that have been isolated from cattle and also was similar to *N. caninum* parasites isolated from dogs. Molecular characterization was limited to a portion of the nuclear small subunit ribosomal RNA gene that has been used for diagnostic and phylogenetic studies on *Neospora* sp.^{12,40,41} Complete DNA sequencing of the gene subunit was not performed; however, knowledge of the sequence could provide additional information regarding the evolutionary history of this particular isolate from horses, compared to the *Neospora* isolates obtained from cattle or dogs.^{40,41}

Our ability to isolate and characterize a *Neospora* agent from the horse described here suggested that *Neospora* sp should be considered in the differential diagnosis of EPM. Clinically, this horse had a 3-month history of slowly progressing asymmetric ataxia and weakness of the hind limbs, signs compatible with EPM. Neurologic deficits and results of CSF analysis, necropsy, and histologic examination were consistent with a diagnosis of *S. neurona*-induced EPM, but there were histologic features that were atypical of *S. neurona* infection. First, the spinal cord inflammation was limited almost entirely to the periphery of the white matter, sparing the gray matter. This same pattern has been reported in another horse with *Neospora*-induced myeloencephalitis.³¹ Further, in the vast majority of

horses with *S. neurona*-induced EPM, protozoa are rarely seen on conventional light microscopy, but were easily found in the affected horse described here. Finally, the consistent detection of numerous protozoal clusters without protozoal rosettes and the detection of protozoal tissue cyst formation suggested infection with a non-*Sarcocystis* organism. Pathologists need to be aware of morphologic differences in infections caused by *S. neurona* and *Neospora* sp to avoid misdiagnosis. It also would suggest the need for confirmation of etiologic agents by use of immunohistochemical analysis, even when western blot results are positive for *S. neurona* antibodies.

The extent of exposure to *Neospora* sp in the population of horses and the importance of the agent as a cause of disease needs to be further evaluated. Generally, immunohistochemical staining for *S. neurona* parasites to confirm the etiologic diagnosis is not performed after completion of a necropsy of horses with lesions consistent with EPM. However, results from the affected horse described here would suggest that immunohistochemical analysis would be a prudent adjunct to the use of conventional histologic examination and western blot testing when confirming the etiologic agent responsible for horses with EPM.

Isolation and characterization of the *Neospora* isolate obtained from the horse described here may have an important impact on treatment, control, and epidemiologic facets of EPM. Therapeutic methods for *S. neurona* may not be as efficacious for use in treating horses with neosporosis, because *Neospora* sp can form tissue cysts. Clinical manifestations of *T. gondii* encephalitis in immunocompromised human beings have been attributed to the recrudescence of infection from the cyst stage.^{42,43} The cyst stage normally remains dormant in immunocompetent people and does not cause pathologic processes or disease, except during periods of recrudescence and replication by tachyzoites.⁴⁴ In human beings with toxoplasmosis, drugs can be used to control active infection of the invading and dividing tachyzoites, but once the parasite forms the cyst stage, it remains refractile to treatment.⁴⁵ Whether the same is true in horses with chronic *Neospora* infection is not known.

Epidemiologic investigations of EPM also must take into consideration the role of *Neospora* sp as well as *S. neurona* infections in horses. Analysis of results for the horse reported here indicated that coinfection with more than 1 parasite might cause EPM. Additionally, detection of *Neospora* organisms in an aborted fetus from a horse indicates that transplacental *Neospora* infections are possible in horses.²⁹ Because vertical transmission of *Neospora* sp is important in cattle and dogs,^{44,45} the role of this mode of transmission and the importance of congenital infections in horses warrants investigations.

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⁴Provided by Dr. J. P. Dubey, USDA, ARS, Zoonotic Disease Laboratory, Beltsville, Md.

*Bio-Rad Laboratories, Hercules, Calif.
 *Sigma Chemical Co. St. Louis, Mo.
 *Kirkegaard & Perry Laboratories Inc. Gaithersburg, Md.
 *Jackson ImmunoResearch Laboratories Inc. West Grove, Pa.
 *Gibco/BRL, Gaithersburg, Md.
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From: Portner, Ginny
Sent: Friday, February 06, 2004 5:06 PM
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Subject: neospora 1645

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00829650 Genuine Article#: EZ739 Number of References: 17
Title: ULTRASTRUCTURE OF DEVELOPING ISOSPORES IN CULTURED CELLS
Author(s): LINDSAY DS ; BLAGBURN BL ; TOIVIOKINNUNAN M
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Title: EVALUATION OF THE SAFETY AND EFFICACY OF VACCINATION OF NURSING RIGGS
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Author(s): PINCKNEY RD; LINDSAY DS ; BLAGBURN BL ; BOOSINGER TR;
MCLAUGHLIN SA; DUBEY JP
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Title: CANINE CUTANEOUS NEOSPOROSIS - CLINICAL IMPROVEMENT WITH CLINDAMYCIN
Author(s): DUBEY JP; METZGER FL; HATTEL AL; LINDSAY DS; FRITZ DL
Corporate Source: USDA ARS, INST LIVESTOCK & POULTRY SCI, PARASITE BIOL &
EPIDEMIOLOG LAB, BLDG 1040, RM 104, BARC-E/BELTSVILLE//MD/20705; METZGER
ANIM HOSP/STATE COLLEGE//PA/16801; PENN STATE UNIV, ANIM DIAGNOST
LAB/UNIVERSITY PARK//PA/16802; AUBURN UNIV, COLL VET MED, DEPT
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Evidence suggesting a point source exposure in an outbreak of bovine
abortion due to neosporosis.
McAllister M M; Huffman E M; Hietala S K; Conrad P A; Anderson M L;
Salman M D

EVALUATION OF THE SAFETY AND EFFICACY OF VACCINATION OF NURSING PIGS WITH LIVING TACHYZOITES OF TWO STRAINS OF *TOXOPLASMA GONDII*

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ABSTRACT: The safety of vaccination and persistence and distribution of *Toxoplasma gondii* stages within tissues following vaccination were examined in 3-day-old nursing pigs vaccinated with living tachyzoites by intravenous and subcutaneous routes of either the TS-4 mutant strain or its parent RH strain of *T. gondii*. The efficacy of vaccination of nursing pigs with the TS-4 mutant was also examined in pigs challenged orally with oocysts following vaccination. Pigs were vaccinated with 3×10^5 living tachyzoites when 3 days old and boosted with 3×10^5 living tachyzoites when 17 days old. Group 1 had 2 pigs vaccinated intravenously (i.v.) with Hanks' balanced salt solution (HBSS) and served as a vaccination control. Group 2 had 5 pigs vaccinated i.v. with tachyzoites of the TS-4 mutant; 3 pigs were used to examine the safety, persistence, and distribution of the TS-4 mutant and 2 were used for oocyst challenge. Group 3 had 5 pigs vaccinated i.v. with tachyzoites of the RH strain and all were used to examine the safety, persistence, and distribution of the RH strain within their tissues. Group 4 had 3 pigs vaccinated subcutaneously (s.c.) with tachyzoites of the TS-4 mutant; 1 was used to determine the persistence and distribution of the TS-4 mutant within its tissues and the other 2 pigs were used for GT-1 oocyst challenge studies. Group 5 had 3 pigs vaccinated s.c. with tachyzoites of the RH strain and all were used to examine the safety, persistence, and distribution of the RH strain within their tissues. None of the control pigs or pigs vaccinated with the TS-4 mutant developed clinical signs of disease or died prior to oocyst challenge. The TS-4 mutant was not reisolated from the tissues of vaccinated pigs nor were microscopic lesions present in the tissues of pigs that had been killed and examined at necropsy. Severe disease with clinical signs consisting of dyspnea, inactivity, diarrhea, and ocular lesions was observed in the group 3 pigs vaccinated i.v. with the RH strain. One pig died 7 days after initial vaccination. Microscopic lesions were observed in numerous tissues of all group 3 pigs. Swelling, erythema, and ulcers were observed at the site of inoculation in the group 5 pigs that were vaccinated s.c. with the RH strain. Minimal to no microscopic lesions were observed in these group 5 pigs. The RH strain was reisolated from pigs in both groups vaccinated with this strain. Control pigs and pigs vaccinated with the TS-4 mutant were challenged orally with 8×10^4 oocysts of the GT-1 strain at 33 days of age. Vaccination with the TS-4 mutant by intravenous or subcutaneous routes did not prevent tissue cyst formation in pigs following oocyst challenge. However, results of bioassays in mice indicated that pigs given the TS-4 mutant s.c. had fewer tissue cysts in their tissues after oocyst challenge.

Toxoplasma gondii is a ubiquitous protozoan parasite of man and other animals (Dubey and Beattie, 1988). Most *T. gondii* infections in pigs are subclinical (Dubey, 1986), although clinical disease outbreaks have occasionally been reported (Dubey et al., 1979; Weissenböck and Dubey, 1993). Although the means by which pigs acquire infections in nature is not known definitively, ingestion of sporulated oocysts from the environment appears to be the main source of infection (Dubey, 1986; Weissenböck and Dubey, 1993).

A recent national survey of 11,842 pigs from

the U.S.A. demonstrated that 23.9% were serologically positive for antibodies to *T. gondii* (Dubey, Leighty et al., 1991). This prevalence, together with the longevity of *T. gondii* tissue cysts in pork (Dubey, 1988), indicate that ingestion of infected pork may be an important mode of transmission of the parasite to man.

A vaccine capable of preventing tissue cysts of *T. gondii* from developing in pigs could aid in preventing human infections. We conducted experiments to determine first the safety, persistence, and tissue distribution of the TS-4 temperature-sensitive mutant (Pfefferkorn and Pfefferkorn, 1976) of *T. gondii* and its parent RH strain (Sabin, 1941) following vaccination of 3-day-old nursing pigs by either subcutaneous or intravenous routes with living tachyzoites and second, if vaccination of nursing pigs with TS-4 mutant tachyzoites protected against oral challenge with oocysts of the GT-1 strain (Dubey, 1980) of *T. gondii*.

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TABLE I. Experimental protocol for tachyzoite and oocyst inoculations and ophthalmic and necropsy examinations of pigs.

	2nd TZ/HBSS INC*	OO INC†	OP exam‡	NC exam§
Group 1 (HBSS i.v.)¶				
Pig 1-1	14	30	10	78
Pig 1-2	14	30	ND#	78
Group 2 (TS-4 i.v.)				
Pig 2-1	ND	ND	ND	8
Pig 2-2	ND	ND	ND	14
Pig 2-3	14	ND	ND	22
Pig 2-4	14	30	ND	78
Pig 2-5	14	30	10	78
Group 3 (RH i.v.)				
Pig 3-1	ND	ND	ND	71
Pig 3-2	ND	ND	9	9
Pig 3-3	14	ND	ND	15
Pig 3-4	14	ND	10, 14	42
Pig 3-5	14	ND	60	60
Group 4 (TS-4 s.c.)				
Pig 4-1	ND	ND	ND	14
Pig 4-2	14	30	ND	81
Pig 4-3	14	30	ND	81
Group 5 (RH s.c.)				
Pig 5-1	ND	ND	ND	14
Pig 5-2	14	ND	ND	42
Pig 5-3	14	ND	ND	57

* Day after first vaccination of booster inoculation.

† Day after first vaccination of oocyst challenge.

‡ Day after first vaccination of ophthalmic examination.

§ Day after first vaccination when pig was killed and examined at necropsy.

¶ Treatment group received and mode of vaccination: i.v., intravenous; s.c., subcutaneous.

ND, no procedure performed on this pig.

† Pig found dead on this day.

MATERIALS AND METHODS

Animals

Eighteen (11 males and 7 females) 3-day-old pigs from 2 Yorkshire \times Duroc \times Landrace sows were used (Table I). Serum samples from sows were negative for *T. gondii* antibodies (lowest titer examined 1:25) in the modified direct agglutination test (MAT) as conducted by Dubey and Desmonts (1987). Pigs were raised indoors as litters with their sows in isolation farrowing crates until they were weaned at 21 days of age. Non-medicated rations and water were provided ad libitum during the study. Pigs were moved to a separate building approximately 0.4 km from the farrowing building and housed in an 8.3-m² stall with a concrete floor before they were inoculated with oocysts.

Female (18–22-g) Hsd:ICR mice were used for examination of porcine tissues for *T. gondii* in the bioassay portions of the experiments.

Parasites

The RH, TS-4, and GT-1 strains of *T. gondii* were used. The RH and GT-1 strains of *T. gondii* are highly pathogenic for mice (Sabin, 1941; Dubey, 1980),

whereas the TS-4 mutant is not pathogenic for mice (Waldeland et al., 1983). Because of this, if mice died from toxoplasmosis following inoculation with tissue homogenates from vaccinated or oocyst-challenged pigs, then these deaths were attributed to these pathogenic isolates being present in the tissues and not due to the TS-4 mutant vaccine.

Tachyzoites of the TS-4 mutant and RH strain were grown in human foreskin fibroblast cells (Hs68, American Type Culture Collection, CRL 1635, Rockville, Maryland) at 32.5 C or 37 C, respectively, in an incubator with a 95% air–5% CO₂ atmosphere as previously described (Lindsay et al., 1991, 1993). To obtain tachyzoites for inoculations, the growth medium was removed from the flask and replaced with Hanks' balanced salt solution (HBSS). Cells containing tachyzoites of either the TS-4 mutant or RH strains were scraped from the growth surface using a cell scraper. The suspension was then filtered through a sterile 3- μ m filter, and the numbers of tachyzoites present in the filtrate were counted with the aid of a hemacytometer. The final volume of suspension was adjusted so that 0.5 ml or 0.1 ml contained 3×10^5 tachyzoites.

Oocysts of the GT-1 strain of *T. gondii* were obtained as follows. Sprague-Dawley white rats, previously infected orally with oocysts of the GT-1 strain, were killed and their brains removed and fed to *T. gondii*-free cats maintained in an isolation facility. Oocysts were collected from the feces of infected cats, sporulated in 2% (v/v) sulfuric acid, and stored at 4 C for 6 mo before use. The number of infective oocysts present in the inoculum was determined with the aid of a hemacytometer, and the counts were confirmed by bioassays in mice (Dubey, 1980). For use in this study, oocysts were washed 3 times in HBSS to remove the sulfuric acid, and the final volume of inoculum was adjusted so that 1 ml contained 8×10^4 infective oocysts.

Inoculation and examination of nursing pigs

Our studies were performed in 2 phases. The first phase was conducted to determine the safety of vaccination, the persistence and tissue distribution of the TS-4 mutant and RH strains in the tissues of nursing pigs, and to compare intravenous and subcutaneous modes of vaccination. HBSS or tachyzoites were used for experimental vaccinations. All intravenous vaccinations were administered via the precava vein, and subcutaneous vaccinations were administered in the dorsal medial surface of the right ear. The ear was chosen for subcutaneous vaccination because its temperature is lower than other body parts. Group 1 had 2 pigs (1-1 and 1-2) that were each vaccinated intravenously (i.v.) with HBSS and served as vaccination controls. Group 2 had 5 pigs (2-1, 2-2, 2-3, 2-4, and 2-5) that were each vaccinated i.v. with TS-4 mutant tachyzoites; 3 pigs (2-1, 2-2, and 2-3) were used to examine the safety of intravenous vaccination and to determine the persistence and distribution of the TS-4 mutant, whereas 2 pigs (2-4 and 2-5) were used for oocyst challenge studies. Group 3 had 5 pigs (3-1, 3-2, 3-3, 3-4, and 3-5) that were each vaccinated i.v. with RH tachyzoites; all were used to examine the safety of intravenous vaccination and to determine the persistence and distribution of the RH strain. Group 4 had

3 pigs (4-1, 4-2, and 4-3) that were each vaccinated subcutaneously (s.c.) with TS-4 mutant tachyzoites; one pig (4-1) was used to examine the safety of subcutaneous vaccination and to determine the persistence and distribution of the TS-4 mutant, whereas 2 pigs (4-2 and 4-3) were used for oocyst challenge studies. Group 5 had 3 (5-1, 5-2, and 5-3) pigs that were each vaccinated s.c. with RH strain tachyzoites; all were used to examine the safety of subcutaneous vaccination and to determine the persistence and distribution of the RH strain. Each pig received 3×10^5 living tachyzoites of either the TS-4 mutant or RH strains. All pigs were vaccinated on day 0 and boosted on day 14, when they were 3 and 17 days old, respectively.

The second phase of our study was an oocyst challenge experiment. Two pigs from group 1, 2 pigs from group 2, and 2 pigs from group 4 were each challenged orally on day 30 after initial vaccination (AIV) with 8×10^4 oocysts of the GT-1 strain of *T. gondii*. The specific days that pigs in each group died or were killed and examined at necropsy are given in Table I.

Serum samples were obtained from each surviving pig on days 0, 7, 14, 21, 28, 35, 42, 49, 57, 60, 63, 78, and 81 AIV. These samples were tested using the MAT at the U.S. Department of Agriculture, Zoonotic Diseases Laboratory, at dilutions of 1:25, 1:50, 1:500, and 1:5,000 (Table II). Rectal temperatures were determined for each surviving pig in all groups on each of days 0–21, and for GT-1 strain-challenged pigs in groups 1, 2, and 4, on each of days 0–14 after oocyst challenge. Pigs were killed by intravenous injection of pentobarbital sodium solution (Schering-Plough Animal Health, Kenilworth, New Jersey) at specified times (Table I), and a necropsy was performed. Portions of cerebrum, cerebellum, medulla, pons, tongue, heart, diaphragm, "ham" (portions of semitendinosus and semimembranosus muscles), thymus, lungs, ear (at injection site), gall bladder, liver, hepatic lymph nodes, spleen, splenic lymph node, pancreas, kidneys, adrenal glands, stomach, duodenum, jejunum, ileum, cecum, spiral colon, mesenteric lymph nodes, urinary bladder, and testes were fixed in 10% neutral buffered formalin solution. Eyes were fixed in Zenker's solution. Tissue sections were obtained using routine histological techniques after paraffin or glycol methacrylate embedding and stained with hematoxylin and eosin (H&E). If H&E-stained slides of TS-4 mutant-vaccinated pig tissues contained lesions but no developmental stage of *T. gondii*, additional sections were prepared and examined using rabbit anti-*T. gondii* serum and an avidin-biotin peroxidase complex (ABC) system (Lindsay and Dubey, 1989).

At selected intervals during the experiments, ophthalmic examinations were conducted on various pigs using standard ophthalmological techniques (Table I). Conjunctival specimens were obtained aseptically from 1 pig with ocular lesions and 2 pigs without ocular lesions and cultured for bacterial and viral pathogens using routine methods.

Bioassay of pig tissues for *T. gondii*

In experiment 1, 5-g samples of selected tissues were collected from pigs vaccinated with TS-4 mutant or RH strain tachyzoites. These tissues were homogenized in 50 ml of HBSS in a blender for 1 min, filtered through

cheesecloth, and pelleted by centrifugation. Samples were resuspended in 5 ml of HBSS that contained 1,000 U/ml penicillin G and 1,000 µg/ml streptomycin sulfate (antibiotics, Gibco Laboratories, Grand Island, New York). One milliliter of suspension prepared from each tissue was inoculated s.c. into each of 5 mice (Table III).

In the second phase of the study, 25-g samples of brain, heart, ham, and tongue were collected from each pig in each of groups 1, 2, and 4, blended individually in 100 ml of HBSS for 1 min, and digested in 100 ml of acid-pepsin solution (Dubey and Beattie, 1988) for 30 min at 37 C in a shaking water bath. The digest was filtered through cheesecloth and washed by centrifugation in HBSS. The pellet from each tissue was suspended in 5 ml of HBSS containing antibiotics. One milliliter of suspension prepared from each tissue was inoculated s.c. into each of 5 mice (Table IV).

Examination of mice for *T. gondii*

Nonstained impression smears of lungs from mice that died after inoculation with pig tissues were examined for tachyzoites as previously described (Lindsay et al., 1993). Blood samples were obtained from the retro-orbital plexus of mice that survived 30 (phase 1) or 42 days (phase 2) after subcutaneous inoculation of a suspension prepared from each tissue. Serum from each mouse was diluted 1:50 and 1:100 and examined for *T. gondii* antibodies using an indirect fluorescent antibody test (Lindsay et al., 1990). A nonstained squash preparation of the brain of each mouse was examined microscopically for tissue cysts.

Statistical analysis

Data on rectal temperatures following vaccination and oocyst challenge were examined using commercially available software (SAS Institute, Inc., Cary, North Carolina). Differences among groups were determined using the General Linear Models for analysis of variance and Scheffé's test for multiple comparisons.

RESULTS

Responses of nursing pigs to vaccination

Mild diarrhea of 1–4 days duration, associated with the presence of *Isospora suis* oocysts, was observed in some pigs from all groups during the first 7–14 days AIV. No stage of *I. suis* was seen in any tissue section from pigs in this study.

An ophthalmic examination conducted on pig 1-1 on day 13 AIV was normal. None of the group 1 pigs was examined at necropsy in the first phase of the experiment.

No microscopic lesion was observed in the 3 group 2 pigs examined at necropsy on days 8, 14, or 22 AIV (pigs 2-1, 2-2, 2-3). No developmental stage of *T. gondii* was seen in the tissues of these pigs. An ophthalmic examination conducted on pig 2-5 on day 10 AIV was normal.

Two of the pigs in group 3 (3-1 and 3-2) developed severe clinical signs of disease 5–9 days

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FIGURE 1. Comparison of a pig (1-1) given Hanks' balanced salt solution (HBSS) intravenously (i.v.) (left) and a pig (3-2) given the RH strain of *Toxoplasma gondii* i.v. (right) and examined 9 days after vaccination. Note the corneal ulcer (arrow) on the right eye and buphthalmos, lagophthalmos, and periorbital edema (arrowhead) of both eyes of the pig given the RH strain i.v.

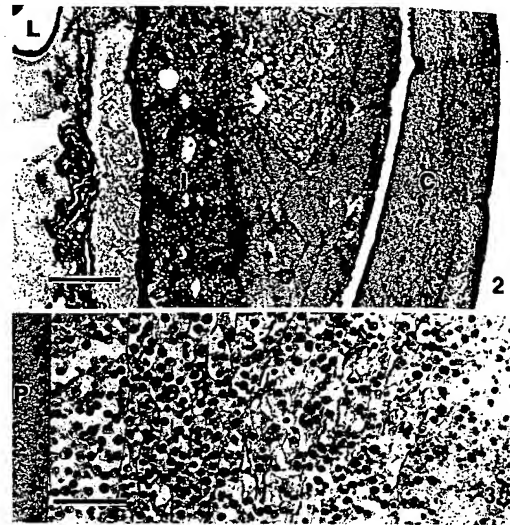
AIV. Pigs 3-1 died 7 days AIV. Diffuse infiltrates of inflammatory cells consisting primarily of lymphocytes and macrophages were observed throughout the retina and choroid. Large focal areas of gliosis, hemorrhage, and multifocal areas of necrosis were observed in the cerebrum. Diffuse myocarditis accompanied by degeneration of myocardial fibers and groups of tachyzoites were observed in the heart. Lung lesions were characterized by an interstitial pneumonia, with multifocal areas of necrosis and diffuse infiltrates of inflammatory cells consisting primarily of lymphocytes and alveolar macrophages. Multifocal areas of necrosis were observed in tissue sections of the liver, tongue, skeletal muscle, diaphragm, spleen, pancreas, kidney, thymus, mesenteric lymph node, stomach, and dermis of the eyelid. Severe ophthalmic signs were observed in pig 3-2 on day 7 AIV (Fig. 1). Ophthalmic examination revealed exposure keratitis, conjunctivitis, corneal ulceration, hypopyon (exu-

date in the anterior chamber), buphthalmos (enlargement of the globe), lagophthalmos (inability to close eyelids), and periorbital edema. The retina could not be visualized. Due to the severity of these lesions, the pig was killed and examined at necropsy 9 days AIV. Ocular lesions in histologic sections from both eyes of pig 3-2 were indicative of chorioretinitis and retinal vasculitis (Figs. 2-5). Microscopic examination of the right eye revealed an ulcer in the corneal epithelium, prominent perivascular infiltrates consisting primarily of lymphocytes, and fibrin and exudate in the anterior chamber. Several groups of tachyzoites were observed in the iris, choroid, and retina. Microscopic examination of the left eye revealed fibrin and exudate in the anterior chamber, retinal detachment, and inflammatory cells consisting primarily of lymphocytes and macrophages distributed in the cornea, iris, and ciliary body. Several groups of tachyzoites were observed in the anterior chamber, sclera, and

choroid (Figs. 4, 5). Multifocal areas of necrosis and gliosis were observed in the cerebrum, but no developmental stage of *T. gondii* was demonstrated. Diffuse cellular infiltration consisting primarily of alveolar macrophages and lymphocytes, multifocal areas of necrosis, and groups of tachyzoites in alveoli were observed in the lung. Multifocal areas of necrosis and tachyzoites were observed in the liver. Multifocal areas of necrosis and diffuse infiltrates of lymphocytes, neutrophils, and macrophages were present in tissue sections of heart, tongue, skeletal muscle, diaphragm, spleen, pancreas, kidney, thymus, mesenteric lymph node, stomach, dermis of the right ear, and eyelid. Ophthalmic examination was performed on pig 3-4 on day 10 AIV. The examination of the right eye revealed small, white retinal lesions associated with blood vessels directly temporal to the optic disc, congested vessels of the iris, and slight inflammation of the conjunctiva. No lesions were observed in the left eye. Ophthalmic examination of pig 3-4 4 days later (14 days AIV) demonstrated progressive lesions of retinochoroiditis in the right eye. Pig 3-5 was examined 60 days AIV. The right eye revealed a small ($\leq \frac{1}{4}$ disc diameter), slightly raised, white area approximately 2 disc diameters dorsal and 1 disc diameter nasal to the optic nerve. Examination of the left eye revealed a similar area located 1-2 disc diameters nasal and just slightly dorsal to the optic disc.

Pig 4-1 in group 4 developed subcutaneous hemorrhage at the subcutaneous site of vaccination. No microscopic lesion or developmental stage of *T. gondii* was seen in the tissues of pig 4-1 examined 14 days AIV. No ophthalmic examination was conducted on any pig in group 4. Pigs 4-2 and 4-3 were used for oocyst challenge studies.

All 3 pigs in group 5 developed erythema and swelling of the s.c.-vaccinated ear by 5 days AIV. An ulcer developed at the injection site in each pig but later resolved, leaving a scar. Lesions were mild in the group 5 pigs. Pig 5-1 killed 14 days AIV demonstrated a mild focal area of inflammation consisting primarily of lymphocytes and neutrophils in the choroid of the right eye. No lesion was observed in pig 5-2 killed 42 days AIV. Pig 5-3 killed 57 days AIV demonstrated 1 focal area of inflammatory cells, consisting primarily of lymphocytes in the dermis of the right ear. No developmental stage of *T. gondii* was seen in the tissues of these pigs. No ophthalmic examination was conducted on the group 5 pigs.

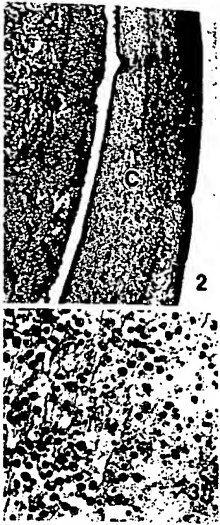


FIGURES 2, 3. Microscopic lesions in the right eye of a pig (3-2) given the RH strain of *Toxoplasma gondii* intravenously and necropsied 9 days later. 2. Photomicrograph demonstrating corneal edema and inflammation of the iris (I) and cornea (C). Note the lens (L). Bar = 100 μ m. 3. Inflammation of the vitreous with mononuclear cells and neutrophils. Note the numerous inflammatory cells below the posterior lens capsule (P). Bar = 50 μ m.

Conjunctival specimens obtained from pigs in various groups did not yield bacterial or viral pathogens.

Rectal temperatures were significantly ($P \leq 0.05$) higher on days 3-8 AIV for pigs receiving the RH strain by either route than pigs receiving HBSS i.v. or the TS-4 mutant by either route (Figs. 6, 7). Rectal temperatures of pigs receiving the TS-4 mutant by either route were not significantly different ($P \geq 0.05$) from pigs receiving HBSS i.v. for the 21-day observation period (Figs. 6, 7). No clinical sign of disease was noted in the pigs in any group after booster inoculations with TS-4 mutant or RH strain tachyzoites.

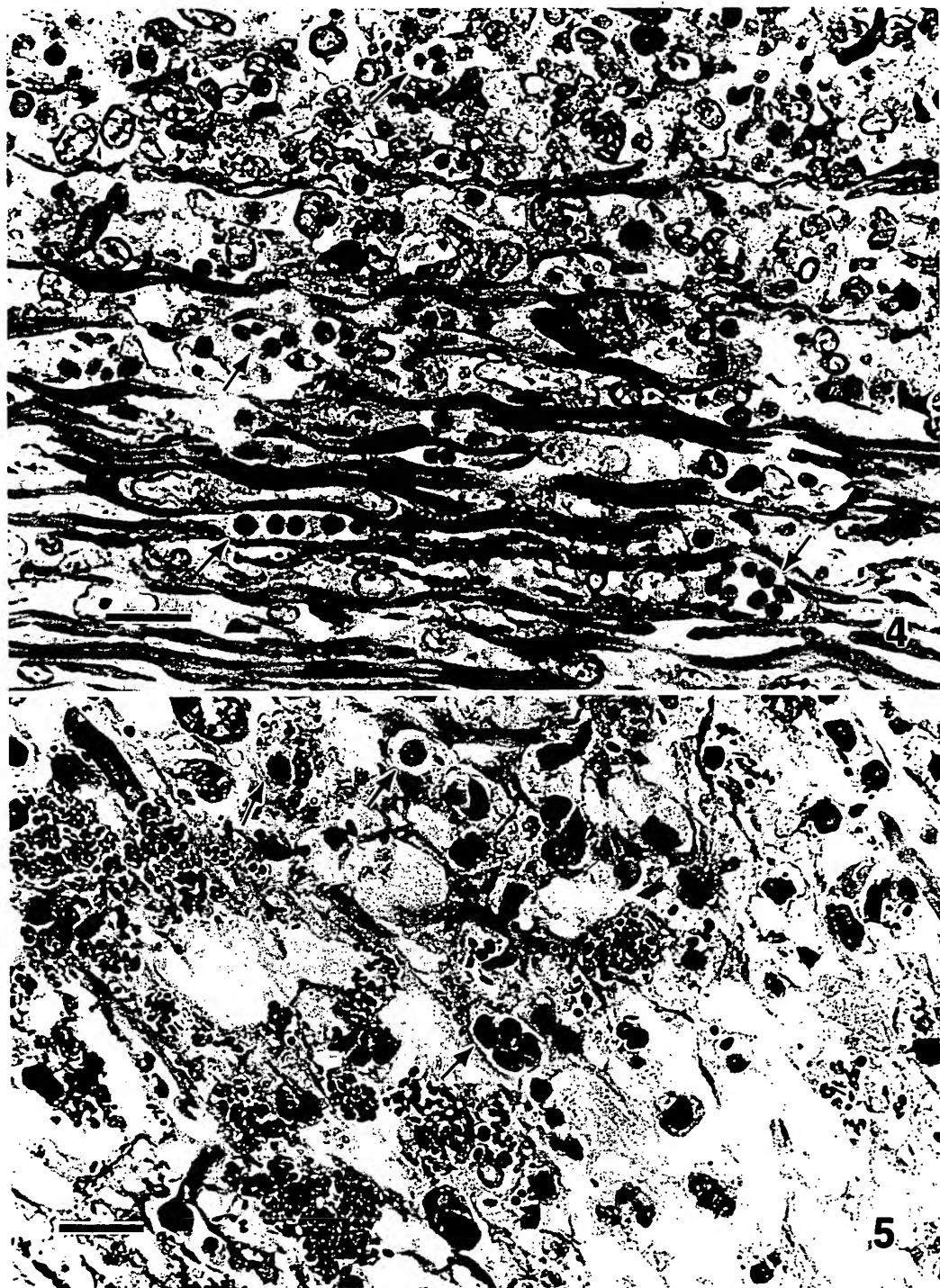
Results of serological examinations for antibodies to *T. gondii* are presented in Table II. The low MAT titers observed in some nursing pigs at 3 days of age and prior to *T. gondii* vaccination probably represent nonspecific reactions. All MAT titers in these pigs decreased to $< 1:25$ by the time that these pigs were 10 days of age (7 days AIV) (Table II). Both group 1 pigs vaccinated i.v. with HBSS remained seronegative ($< 1:25$) until 12 days after oocyst challenge. The pigs in group 2 vaccinated i.v. with the TS-4 mutant had low ($< 1:25$ to $1:500$) *T. gondii* antibody ti-



lesions in the right eye of a pig (3-2) given the RH strain of *Toxoplasma gondii* intravenously and necropsied 9 days later. 2. Photomicrograph of the right eye. Note the lens (L), choroid (C), and the posterior lens capsule (P). Note the numerous tachyzoites (arrows).

obtained from pigs in which no bacterial or viral

reactions were significantly ($P \leq 0.05$) for pigs receiving the RH strain than pigs receiving the TS-4 mutant by either route. Lesions of pigs receiving the RH strain were not significantly ($P \leq 0.05$) from pigs receiving the TS-4 mutant during the observation period (Figs. 4, 5). No disease was noted in the sterile inoculations with tachyzoites. Examinations for anti-*Toxoplasma* antibodies are presented in Table II. The results in some nursing pigs given the *T. gondii* vaccination are specific reactions. All were increased to $<1:25$ by age 10 days of age (7 in group 1 pigs vaccinated seronegative ($<1:1$) at challenge. The pigs with the TS-4 mutant *T. gondii* antibody titers



FIGURES 4, 5. Microscopic lesions in the left eye of a pig (3-2) given the RH strain of *Toxoplasma gondii* intravenously and necropsied 9 days later. 4. Numerous tachyzoites (arrows) in the sclera. Note increased cellularity and infiltration of mononuclear cells. Bar = 10 μ m. 5. Mononuclear cells and tachyzoites (arrows) in the choroid. Bar = 10 μ m.

ters at 21 days AIV. In contrast, the pigs in group 3 vaccinated i.v. with the RH strain had developed high ($\geq 1:5,000$) antibody titers by 14 days AIV (Table II). Similar results were obtained with pigs in groups 4 and 5 vaccinated s.c. with TS-4 mutant or RH strain tachyzoites, respectively.

Antibodies to *T. gondii* were not detected in the serum, and no *T. gondii* stage was seen in brain smears from mice inoculated with tissues from pigs in groups 2 or 4. *Toxoplasma gondii* was isolated in mice inoculated with various tissues from all 5 pigs in group 3 and tissues from pig 5-1 in group 5 (Table III). All mice that were positive for *T. gondii* died, and no *T. gondii* antibodies or stages were observed in the serum or brains of surviving mice.

Oocyst challenge

The 2 control pigs in group 1 developed mild diarrhea 6–8 days post-oocyst challenge (POC). No clinical sign of disease occurred in the vaccinated pigs in group 2 or 4 POC. No gross lesion was seen in any pig challenged with oocysts.

Pig 2-5 had a focal area of perivascular lymphocytic infiltrate associated with mild gliosis in the cerebrum. No other pig challenged with oocysts had microscopic lesions. No stage of *T. gondii* was observed in H&E- or ABC-stained tissues from these pigs.

Rectal temperatures were not significantly different ($P \geq 0.05$) for the 3 groups of oocyst-challenged pigs over the 14-day POC observation period.

The MAT results are presented in Table II. All 6 pigs developed high ($\geq 1:5,000$) *T. gondii* antibody titers within 5–14 days POC.

Toxoplasma gondii was isolated from mice inoculated with tissues from all pigs in all groups; however, fewer mice were positive in the groups inoculated with tissues from pigs in group 4 vaccinated s.c. with the TS-4 mutant (Table IV). All mice that were positive for *T. gondii* died. No

T. gondii antibodies or stages were observed in the serum or brains of surviving mice.

DISCUSSION

The absence of severe clinical signs, gross and histopathological lesions in the TS-4 mutant-vaccinated pigs indicates that the TS-4 mutant is safe for use in nursing pigs. These findings are similar to those reported for weaned 3-wk-old pigs vaccinated i.v. or s.c. with the TS-4 mutant (Lindsay et al., 1993). This suggests that age probably is not a factor in susceptibility of pigs to vaccination with the TS-4 mutant. This is not true for other *T. gondii* isolates. In general, toxoplasmosis is more severe in neonatal- and perinatal-infected pigs than in adult pigs. Age-related susceptibility to toxoplasmosis in pigs has been reported by others (Folkers, 1964; Moller et al., 1970; Work et al., 1970; Beverley et al., 1978).

It was previously reported that the RH strain does not persist in the tissues of pigs for more than 64 days (Work et al., 1970; Dubey, Urban, and Davis, 1991). In addition, pigs vaccinated with the RH strain and challenged with oocysts do not develop severe toxoplasmosis (Dubey, Urban, and Davis, 1991). In the present study, the RH strain was recovered from the tissues of all group 3 pigs vaccinated i.v. with the RH strain and examined on or before 60 days AIV. However, few infectious stages appeared to be present after 40 days because few inoculated mice became *T. gondii* positive (Table III). The RH strain was not isolated from 2 pigs vaccinated s.c. and killed 42 and 57 days AIV (Table III). This lack of apparent persistence of the RH strain in pigs and subsequent reduction in clinical signs following oocyst challenge support its possible use as a vaccine (Dubey, Urban, and Davis, 1991). However, results of the present study and of others (Work et al., 1970) indicate that some laboratory lines of the RH strain can cause severe toxoplasmosis in pigs, especially those inoculat-

FIGURES 6, 7. 6. Mean rectal temperatures and standard deviations of the mean for nursing pigs in groups 1, 4, and 5 following vaccination i.v. with HBSS (group 1, solid bars), vaccination s.c. of the TS-4 mutant of *Toxoplasma gondii* (group 4, small cross-hatched bars), of vaccination s.c. of the RH strain of *T. gondii* (group 5, large cross-hatched bars). 7. Mean rectal temperatures and standard deviations of the mean for nursing pigs in groups 1, 2, and 3 following vaccination i.v. of HBSS (group 1, solid bars), or vaccination i.v. of the TS-4 mutant of *T. gondii* (group 2, small cross-hatched bars) or vaccination i.v. of the RH strain of *T. gondii* (group 3, large cross-hatched bars).

ages were observed in surviving mice.

DISCUSSION

clinical signs, gross and in the TS-4 mutant pigs. These findings are for weaned 3-wk-old pigs with the TS-4 mutant. This suggests that age in susceptibility of pigs to TS-4 mutant. This is not isolates. In general, toxoplasmosis in neonatal- and perinatal adult pigs. Age-related toxoplasmosis in pigs has been reported (Moller et al., 1964; Moller et al., 1978). The RH strain issues of pigs for more than 10 years (Dubey, Urban, 1970; Dubey, Urban, 1970). In addition, pigs vaccinated and challenged with oocysts of toxoplasmosis (Dubey, 1970). In the present study, the RH strain was used from the tissues of pigs infected with the RH strain for 60 days AIV. How- ever, it appeared to be present in the inoculated mice (Table III). The RH strain pigs vaccinated s.c. and i.v. (Table III). This lack of clinical signs fol- lowing inoculation of the RH strain in pigs supports its possible use as a vaccine (Urban, and Davis, 1991). The present study and of other studies indicate that some laboratory strains can cause severe disease, especially those inoculated

for nursing pigs in groups vaccinated s.c. of the TS-4 mutant of *T. gondii* (group 1) and the mean for nursing pigs vaccinated i.v. of the TS-4 mutant of *T. gondii* (group 2).

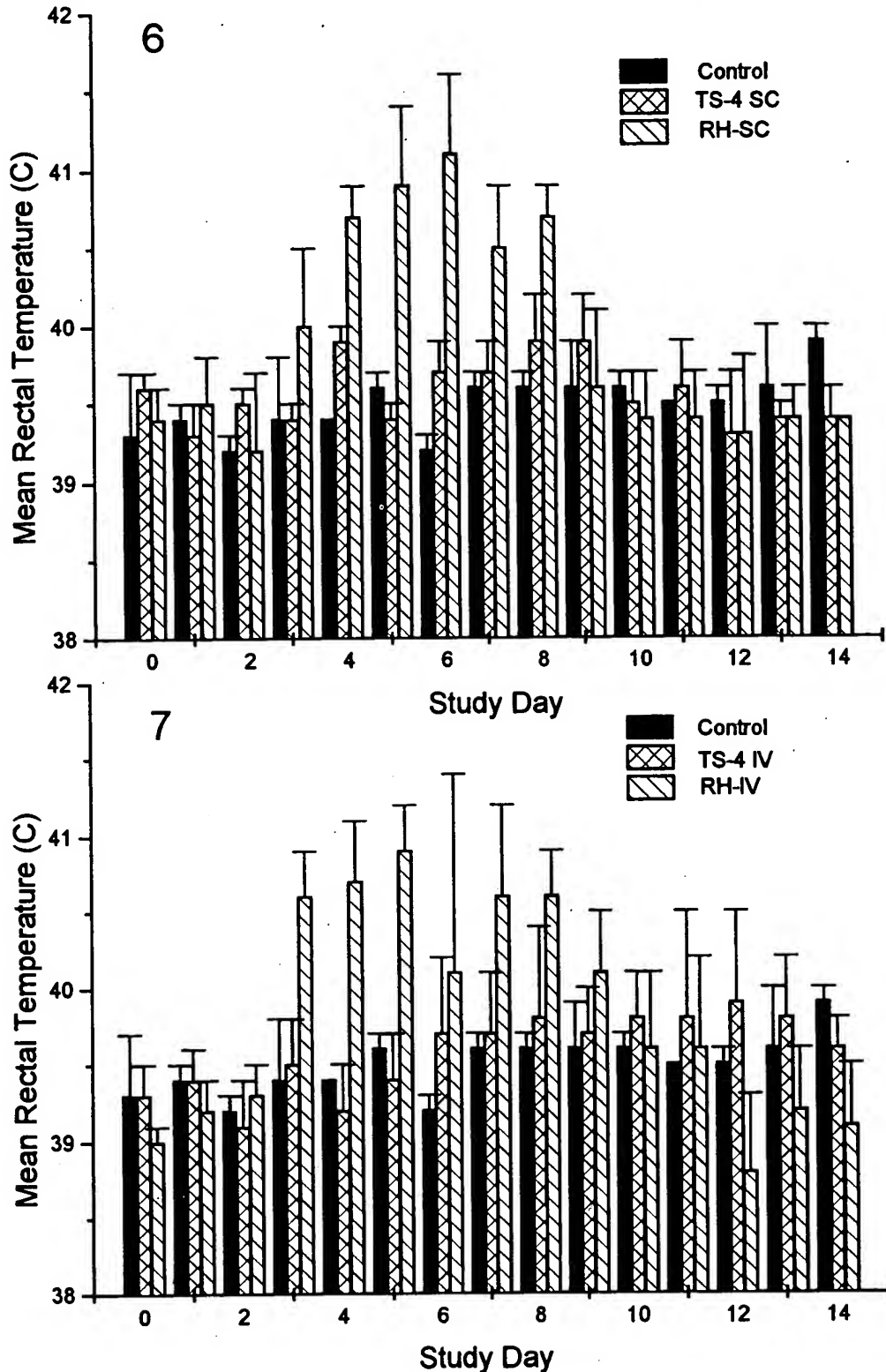


TABLE II. Modified direct agglutination test titers* from pigs in groups 1-5.

PVD†	Group 1					Group 2					Group 3					Group 4					Group 5				
	1-1	1-2	2-1	2-2	2-3	2-4	2-5	3-1	3-2	3-3	3-4	3-5	4-1	4-2	4-3	5-1	5-2	5-3							
0	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25							
7	<25	<25	<25	<25	<25	<25	<25	NA‡	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25							
14	<25	<25	NA	<25	<25	<25	<25	NA	NA	NA	5K	5K	NA	<25	<25	50	50	50							
21	<25	<25	NA	NA	<25	50	500	NA	NA	NA	5K	5K	NA	NA	50	50	50	500							
28	<25	<25	NA	NA	NA	50	50	NA	NA	NA	5K	5K	NA	NA	50	50	50	500							
30	OC§	OC	NA	NA	NA	OC	OC	NA	NA	NA	NO	NO	NA	OC	OC	NA	NA	NO							
35	<25	<25	NA	NA	NA	50	50	NA	NA	NA	5K	5K	NA	50	50	50	50	5K							
42	5K	5K	NA	NA	NA	5K	5K	NA	NA	NA	5K	5K	NA	5K	5K	5K	5K	5K							
49	5K	5K	NA	NA	NA	5K	5K	NA	NA	NA	NA	5K	NA	5K	5K	NA	NA	5K							
57	SU#	SU	NA	NA	NA	SU	SU	NA	NA	NA	NA	SU	NA	SU	SU	NA	NA	NA							
60	SU	SU	NA	NA	NA	SU	SU	NA	NA	NA	NA	5K	NA	SU	SU	NA	NA	NA							
63	5K	5K	NA	NA	NA	5K	5K	NA	NA	NA	NA	NA	NA	5K	5K	5K	5K	5K							
78	5K	5K	NA	NA	NA	5K	5K	NA	NA	NA	NA	NA	NA	5K	5K	5K	5K	5K							
81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5K	5K	5K	5K							

* Titers are expressed as reciprocals; sera were examined at dilutions of 1:25; 1:50; 1:500; and 1:5,000 (=5K).

† Day post-initial vaccination serum sample was collected.

‡ NA, pig died or killed, no sample available on this day postvaccination.

§ OC, pig challenged orally with oocysts on this day after initial vaccination.

|| NO, pig not challenged orally with oocysts.

SU, sample unavailable.

TABLE III. Results of mouse bioassays from tissues from group 3 pigs vaccinated i.v. and pigs from group 5 vaccinated s.c. with the RH strain of *Toxoplasma gondii*.

Tissue	Group 3					Group 5		
	3-1*	3-2	3-3	3-4	3-5	5-1	5-2	5-3
	7	9	15	42	60	14	42	57
Brain	5/5†	5/5	5/5	2/5‡	2/5	0/5	0/5	0/5
Lung	5/5	5/5	ND§	ND	ND	ND	ND	ND
Tongue	5/5	ND	0/5	0/5	0/5	2/5	0/5	0/5
Ham	5/5	ND	5/5	0/5	0/5	2/5	0/5	0/5
Liver	5/5	5/5	ND	ND	ND	ND	ND	ND
Heart	0/5	5/5	0/5	0/5	0/5	0/5	0/5	0/5
MLN	0/5	ND	ND	ND	ND	ND	ND	ND
Spleen	0/5	ND	ND	ND	ND	ND	ND	ND
Total	25/40	20/20	10/20	2/20	2/20	4/20	0/20	0/20

* Pig number/day post-initial inoculation pig was examined at necropsy.

† Number of mice positive/number of mice inoculated.

‡ Mice that survived 30 days PI were killed; all were negative for antibodies (1:50, 1:100, indirect fluorescent antibody test) and brain tissue cysts of *T. gondii*.

§ ND, tissue not examined.

|| MLN, mesenteric lymph node.

ed i.v. This potential safety risk lessens its practical use as a live vaccine.

Chorioretinitis is the most common clinical manifestation of congenital toxoplasmosis in humans but appears to be rare in food animals infected with *T. gondii*. Hansen and Mostafa (1969) reported chorioretinitis in a congenitally infected pig from Sweden. Moller et al. (1970) found retinitis in 2 congenitally infected piglets born to a sow experimentally inoculated orally with tissue cysts of the *T. gondii* strain 119. They also found lesions and *T. gondii* stages in a weaned pig that died 6 days after intravenous inoculation with 3.5×10^7 tachyzoites of the RH strain. The finding of chorioretinitis in 2 pigs in the present study vaccinated i.v. with the RH strain is prob-

ably associated with the young age of the pigs (3 days old) at the time of *T. gondii* vaccination and the intravenous mode of administration.

The TS-4 mutant appears to be a good candidate for a live vaccine because of its safety and lack of persistence in tissues of experimentally infected nursing pigs (present study) or weaned pigs (Lindsay et al., 1993). These findings are similar to studies conducted in mice and hamsters (Waldeland and Frenkel, 1983; Waldeland et al., 1983; Elwell and Frenkel, 1984a, 1984b).

In the present study, we did not prevent tissue cyst formation in nursing pigs vaccinated with the TS-4 mutant strain of *T. gondii* and subsequently challenged with oocysts of the GT-1 strain. The host immune response to the TS-4 mutant may vary with different animal species. Mice inoculated with the TS-4 mutant and challenged with the ME-49 isolate of *T. gondii* had significantly fewer tissue cysts in their brains at necropsy (McLeod et al., 1988). Because of the large size of pigs and the sporadic distribution of cysts in their tissues (Dubey, 1988), we did not quantitatively compare the numbers of tissue cysts in pigs after oocyst challenge. It is interesting that *T. gondii* was isolated from 98% of mice inoculated with tissues from group 2 pigs that were vaccinated i.v., while only 45% of the mice inoculated with tissues from pigs in group 4, which were vaccinated s.c., were positive for *T. gondii*. These results indicate a need to evaluate further the capability of the TS-4 mutant to protect against tissue cyst formation in oocyst-challenged pigs.

TABLE IV. Results of mouse bioassays from tissues of pigs vaccinated i.v. with HBSS (group 1), i.v. with TS-4 mutant tachyzoites (group 2), or s.c. with TS-4 mutant tachyzoites (group 4) and challenged orally with oocysts of the GT-1 strain of *Toxoplasma gondii*.

Tissue	Group 1*		Group 2		Group 4	
	1-1	1-2	2-4	2-5	4-2	4-3
Heart	5/5†	5/5	4/5‡	5/5	4/5	0/5
Brain	5/5	5/5	5/5	5/5	5/5	3/5
Tongue	5/5	5/5	5/5	5/5	0/5	0/5
Ham	5/5	5/5	5/5	5/5	5/5	1/5
Total	20/20	20/20	19/20	20/20	14/20	4/20

* Pigs in groups 1 and 2 were killed 78 days and pigs in group 4 were killed 81 days AIV.

† Number of mice positive/number of mice inoculated.

‡ Mice that survived 42 days were killed; all were negative for antibodies (1:50, 1:100 indirect fluorescent antibody test) and brain tissue cysts of *T. gondii*.

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